

- Support agricultural and erosion control programs to improve water quality in the Suamico River, Green Bay and other surface waters.
- Preserve archaeological sites by incorporating them into the green space requirements of conservation subdivisions or parklands.

Zoning ordinances

Zoning ordinances and maps are used to determine appropriate locations for specific land uses. All study area municipalities have zoning ordinances in place for protection of natural resources including wetlands, shorelands, and floodplains.

Subdivision/land division ordinances

These ordinances determine the manner in which land may be divided and provide design standards for the type and density of public works projects. All municipalities in the study area exercise subdivision and land division authority.

Extraterritorial jurisdiction

Villages and cities have the authority to regulate land divisions within their extraterritorial boundaries in unincorporated areas. Such extraterritorial powers can guide the location of development and help ensure that such development is compact and can be served by public water and sewer.

Official mapping

Adopted maps may be used by municipalities to show the location of planned public facilities including roadways. The maps serve as a tool for preserving land that is planned for future development. All municipalities in the study area have existing and future land use maps in their adopted comprehensive plans.

Tax Incremental Financing (TIF)

Municipalities may adopt TIF districts to direct development and redevelopment to specific locations, which decreases development pressure in natural or planned preservation areas. All of the municipalities in the US 41 study area have adopted TIF districts.

In addition to the local regulations/tools summarized above, federal regulations such as the Clean Water Act, Endangered Species Act, National Historic Preservation Act, and state regulations concerning wetland and water quality protection, and preservation of threatened or endangered species habitat are in place. These regulations also provide opportunities for minimizing potential impacts to environmental resources.

3.3 Socioeconomic Factors

The US 41 Memorial Drive to County M project area lies entirely in Brown County. Municipalities in the project area include the Village of Howard, Village of Suamico and the City of Green Bay.

Table 3-4 displays population growth from 1970 to 2009 for project area municipalities and Brown County. The Town of Suamico experienced substantial population increases with a growth rate of nearly 28 percent. The Village of Howard experienced stable population growth during this same period, with a growth rate of nearly 19 percent. Alternatively, the City of Green Bay experienced small population increases during this period.

**Table 3-4
Population Trends (2000)**

	1970	1980	1990	2000	2009 Estimate	%Change 2000-2009
City of Green Bay	87,809	87,899	96,466	102,767	103,500	0.7%
Village of Howard	4,911	8,240	9,874	13,546	16,110	18.9%
Town of Suamico*	2,830	4,003	5,214	8,686	11,080	27.6%
Brown County	158,244	175,280	194,594	226,778	245,426	8.2%
*Note: The Town of Suamico was incorporated as a village in 2003 Sources: U.S. Census 2000 was used, because it is the most recent, available census data						

Table 3-5 shows population projections for the project area and Brown County. Brown County as a whole is expected to increase its population by nearly 21%.

**Table 3-5
Population Forecasts (2009)**

	2010	2015	2020	2025	2030	%Change 2010-2030
City of Green Bay	107,147	110,654	114,088	117,033	119,370	11.4%
Village of Howard	16,022	16,565	17,098	17,557	17,927	11.9%
Village of Suamico	11,064	11,556	12,042	12,479	12,851	16.2%
Brown County	254,040	268,255	282,409	295,423	306,931	20.8%
Sources: Wisconsin Department of Administration, 2009						

Table 3-6 lists the total number of housing units, occupied housing units, and median home value in the project area municipalities and Brown County. Nearly half of Brown County's housing stock is within the City of Green Bay. Housing in Green Bay is also substantially more affordable than other project area communities.

**Table 3-6
Housing Characteristics (2000)**

	Total Housing Units	Occupied Housing Units	Median Value of Single Family Homes
City of Green Bay	43,123	41,591	\$96,400
Village of Howard	5,350	5,236	\$127,100
Town of Suamico*	3,078	2,966	\$157,800
Brown County	90,199	87,295	\$116,100
*Note: The Town of Suamico was incorporated as a village in 2003 Sources: U.S. Census 2000 was used, because it is the most recent, available census data			

Table 3-7 shows income and employment trends in the project area communities and Brown County. Median household income for project area communities ranges from about \$38,000 to \$65,000, with the City of Green Bay at the low end and the Village of Suamico at the high end. The median household income for Brown County is about \$46,000.

The percentage of families below the poverty level in project area communities is lower than the County average of 4.6 %, with the exception of the City of Green Bay, which is at 7.4 %. The percentage of the adult population in the labor force for each community is also depicted in Table 3-7. In Brown County, 72% of the adult population is in the labor force. The City of Green Bay is slightly below the County average. The Village of Howard and the Village of Suamico are above the county average.

**Table 3-7
Income and Employment Trends (2000)**

	Median Household Income	Percent of Families below Poverty Level	Percent of Population in Labor Force
City of Green Bay	\$38,820	7.4%	70.3%
Village of Howard	\$51,974	3.2%	78.4%
Town of Suamico *	\$65,189	1.0%	79.8%
Brown County	\$46,447	4.6%	72.0%
*Note: The Town of Suamico was incorporated as a village in 2003 Sources: U.S. Census 2000 was used, because it is the most recent, available census data			

Table 3-8 shows the racial composition in the project area communities and Brown County. Totals greater than 100 are due to persons reporting more than one race.

**Table 3-8
Racial Composition (2000)**

	White	Black or African American	American Indian and Alaska Native	Asian	Hispanic Origin/other
City of Green Bay	86%	1%	3%	4%	7%
Village of Howard	96%	1%	1%	1%	1%
Town of Suamico *	98%	0.5%	0.5%	0.5%	0.5%
Brown County	91%	1%	2%	2%	4%
*Note: The Town of Suamico was incorporated as a village in 2003 Sources: U.S. Census 2000 was used, because it is the most recent, available census data					

Tables 3-9 and 3-10 provide data on commuting patterns for project area communities. Place of work data provides an indication of how the US 41 corridor is used for worker commuting. According to 2000 Census data, there were a total of 216,120 workers in the project area. Of those, over 45,900 workers (21%) commute to the City of Green Bay. Approximately 19,000 commute to the Village of Ashwaubenon (9%), 8,800 commute to the City of De Pere (4%), and 5,000 commute to the Village of Howard (2%).

**Table 3-9
Commuting Patterns—Worker Destinations (2000)**

Place of Residence	Total workers:	Percentage of Total	Place of Residence	Total workers:	Percentage of Total
C. De Pere	11,218		C. Green Bay	51,993	
C. Green Bay	3,487	31%	C. Green Bay	28,521	55%
C. De Pere	3,331	30%	V. Ashwaubenon	9,188	18%
V. Ashwaubenon	1,958	17%	C. De Pere	2,969	6%
V. Howard	377	3%	V. Howard	2,240	4%
V. Allouez	369	3%	T. Bellevue	1,640	3%
T. Bellevue	233	2%	V. Allouez	1,446	3%
V. Allouez	7,014		V. Ashwaubenon	9,568	
C. Green Bay	3,096	44%	V. Ashwaubenon	3,633	38%
V. Ashwaubenon	1,196	17%	C. Green Bay	3,425	36%
V. Allouez	909	13%	C. De Pere	750	8%
C. De Pere	600	9%	V. Howard	313	3%

T. Bellevue	239	3%	V. Allouez	234	2%
V. Howard	203	3%	T. Bellevue	197	2%
V. Hobart	2,604		V. Howard	7,686	
C. Green Bay	996	38%	C. Green Bay	3,519	46%
V. Ashwaubenon	526	20%	V. Ashwaubenon	1,240	16%
V. Hobart	308	12%	V. Howard	1,145	15%
C. De Pere	191	7%	C. De Pere	521	7%
V. Howard	143	5%	V. Allouez	210	3%
V. Pulaski	74	3%	T. Bellevue	127	2%
T. Lawrence	865		T. Pittsfield	1,318	
C. Green Bay	214	25%	C. Green Bay	506	38%
V. Ashwaubenon	186	22%	V. Ashwaubenon	158	12%
C. De Pere	128	15%	T. Pittsfield	136	10%
T. Lawrence	102	12%	V. Howard	115	9%
C. Appleton	36	4%	V. Pulaski	93	7%
V. Howard	33	4%	C. De Pere	80	6%
T. Suamico	4,982		Brown County	118,872	
C. Green Bay	2,138	43%	Brown County	108,890	92%
V. Ashwaubenon	860	17%	Outagamie County	4,074	3%
T. Suamico	488	10%	Kewaunee County	876	1%
V. Howard	482	10%	Winnebago County	859	1%
C. De Pere	283	6%	Manitowoc County	818	1%
V. Allouez	68	1%	Oconto County	644	1%
Sources: U.S. Census 2000 was used, because it is the most recent, available census data					

Table 3-10
Mean Travel Time to Work (2000)

Place of Residence	Mean Travel Time to Work
City of Green Bay	17 minutes
Village of Howard	18 minutes
Town of Suamico*	22 minutes
Brown County	18 minutes
*Note: The Town of Suamico was incorporated as a village in 2003	
Sources: U.S. Census 2000 was used, because it is the most recent, available census data	

3.4 Environmental Justice

Presidential Executive Order on Environmental Justice 12898 requires federal agencies to address the impacts of their programs with respect to environmental justice. The Executive Order states that to the extent practicable and permitted by law, neither minority nor low-income populations may receive disproportionately high or adverse impacts as a result of a proposed project. The order also requires that representatives of any low-income or minority population that could be affected by the project be given the opportunity to be included in the impact assessment and public involvement process.

Localized census Block Group data supplemented by the project's public involvement activities were used to determine the presence of minority or low-income populations in the project's area of potential effect.

Census Block Groups

Figure 3-2 displays the census block groups that contain or border the US 41 Memorial Drive to County M project corridor. The U.S. Census Bureau data for 2000 indicates the following population characteristics for these census block groups. Totals greater than 100 are due to persons reporting more than one race.

Total population—9,852

White alone—9,104 (92.4% of total population)

Black or African American alone—112 (1.1% of total population)

American Indian and Alaska Native alone —84 (1.7% of total population)

Asian alone —239 (2.4% of total population)

Some other race alone—72 (<1% of total population)

Two or more races—151 (1.5% of total population)

Hispanic or Latino—201 (2% of total population)

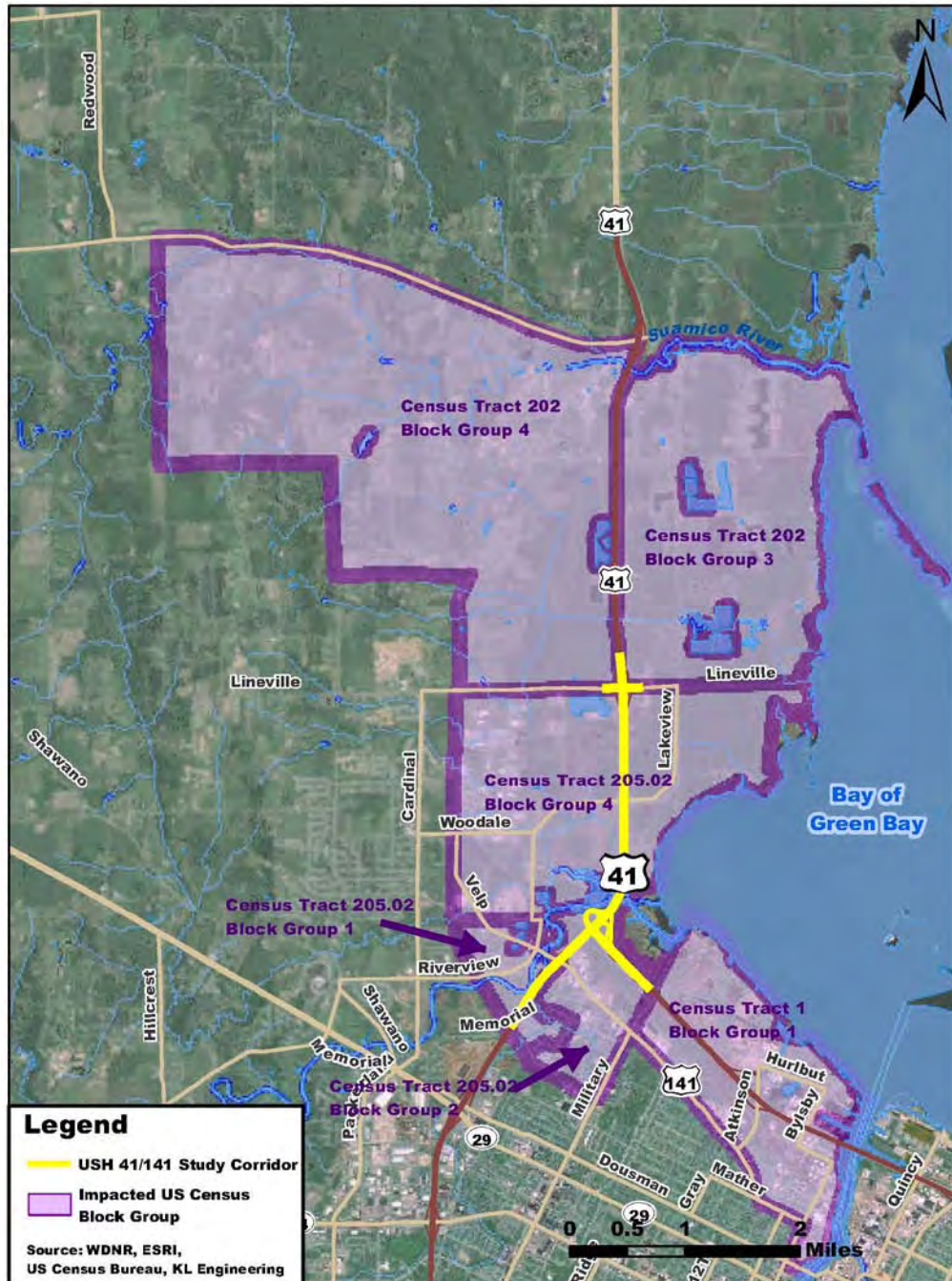
According to the U.S. Census Bureau data for 2000, none of the US Census Block Groups adjacent to the project area have a median household income lower than \$32,165 (1999 dollars). Median household income for the census block groups is substantially above the national poverty line guideline of \$18,310 for households with 3 persons (Department of Health and Human Services, Federal Register, August 2010).

According to U.S. Census Bureau data for 2000, there is no indication that the proposed improvements would disproportionately affect any individuals, groups, or populations subject to Environmental Justice requirements.

During the project's public involvement activities, the project team also had an opportunity to visit with affected residential and business property owners and other area residents. These opportunities gave no indication that the proposed improvements would affect any populations subject to Environmental Justice requirements.

There are no Environmental Justice concerns with the No Build or Build Alternatives.

Figure 3-2: US 41 Project Corridor Census Block Groups



3.5 Residential Development

Residential development in the project area lies predominantly within the Village of Howard. There are concentrations of residential development south of Velp Avenue in the southeastern part of the Village, and in the Memorial Drive area in the southern part of the village. There are several pockets of rural residential development and scattered homes adjacent to US 41 in the northeast part of the Village of Howard. Most new residential development in the Village of Howard has been progressing outward from the older residential core area, to the north and west.

According to the *Village of Howard Comprehensive Plan*, about 78% of the housing units in the village are under 20 years old and a substantial number of homes were built within the last 10 years. In the last 5 years there has been a steady climb in the number of new single-family homes, a moderate increase in the number of new duplexes, and a small amount of new apartment construction. The majority of residential properties in the village are single-family residences. In 2000, 89% of the acres devoted to residential use in the Village of Howard were for single-family residences. Two-family residences (duplexes) and multifamily residences comprised about 5% each.

A large percentage of the multifamily residences in the Village of Howard are located south of Velp Avenue and east of US 41.

3.5.1 Residential Displacements

The No Build Alternative would have no residential displacements.

As reported in the Draft EIS and in the initial Conceptual Stage Relocation Plan in EIS Appendix A, 13 single-family homes were identified as being displaced in the Island Court neighborhood west of US 41 and in the Lone Grove/Rosewood Street neighborhood east of US 41. The residential displacements were due primarily to the Beaver Dam Creek realignment proposed at that time and would be the same for both Alternatives D and E.

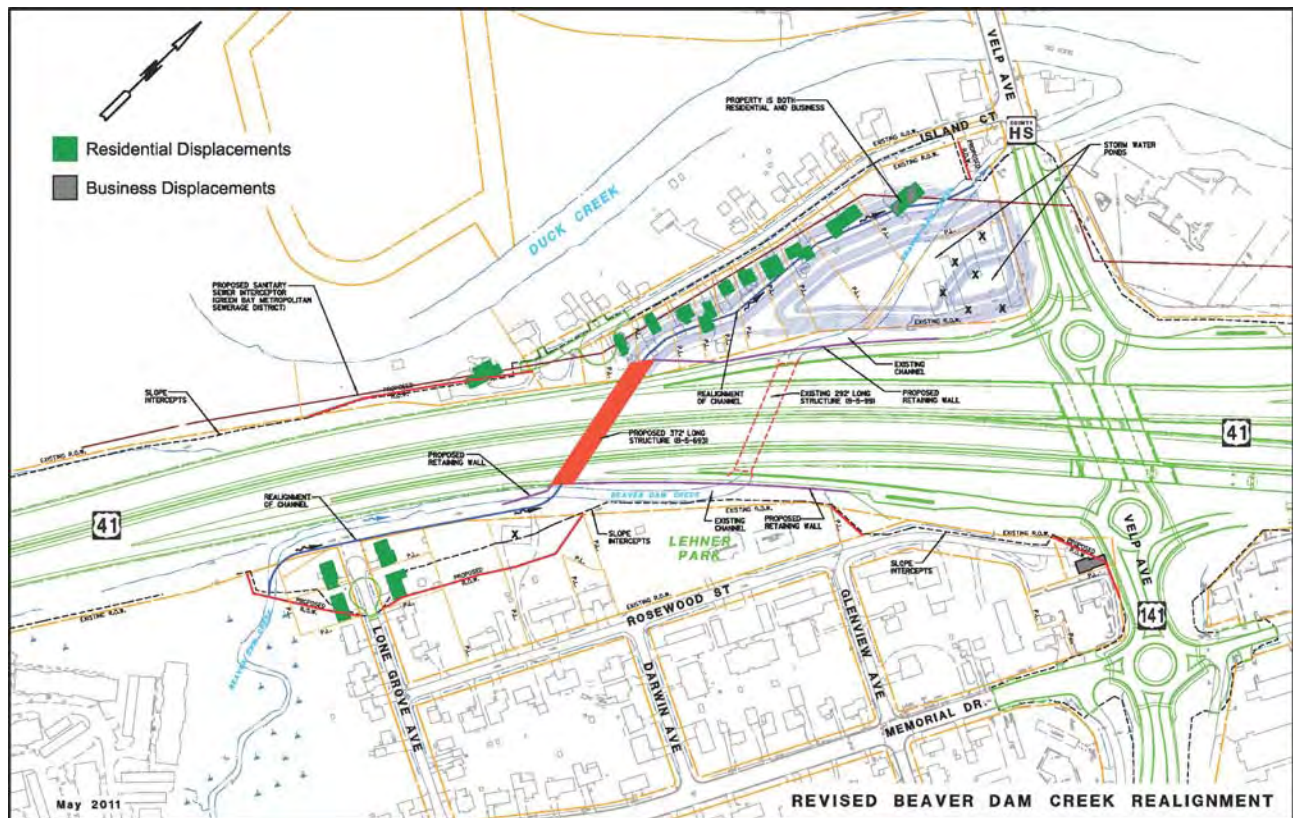
Since the Draft EIS, the proposed Beaver Dam Creek realignment has been revised slightly in the Island Court area to allow for a larger stormwater detention pond at this location. The previous conceptual adjustment for the Green Bay Metropolitan Sewage District (GBMSD) sanitary sewer in the Island Court area has also been revised to accommodate the revised Beaver Dam Creek realignment. See EIS subsection 2.4.2 for more information.

These refinements have resulted in displacement of two additional single-family homes. Therefore, Alternatives D and E would now have 15 residential displacements. The additional single-family homes are shown on revised Figure 3-3, and were shown on displays at the March 2, 2011 public hearing. Both of the additional single-family homes are estimated to have three bedrooms. The 2010 assessed value for one of the homes is \$140,700 and \$127,300 for the other. The owner of the larger parcel where the proposed stormwater pond will be located also operates a licensed game farm on his land for the purpose of raising and selling a variety of birds and ducks. Therefore, this property is also considered to be a business displacement. See subsection 3.5.2 for more information.

The residential displacements noted above are based on the best available design information at this time and are subject to change when more detailed engineering plans are developed.

The Island Court neighborhood is bordered by Duck Creek, Velp Avenue and US 41. Beaver Dam Creek, a tributary to Duck Creek, flows diagonally through the northeast corner of the neighborhood. Access is off Velp Avenue, and Island Court ends with a cul-de-sac at the south end of the neighborhood. A mix of deciduous and evergreen trees along the lots adjacent to US 41 provides some visual screening from the freeway. The Lone Grove Avenue/Rosewood Street neighborhood is bordered by US 41 to the west, open space to the south (Beaver Dam Creek floodplain), and Lehner Park to the north. Beaver Dam Creek runs along northbound US 41 and the west side of the neighborhood. Lone Grove Avenue ends with a cul-de-sac near the existing Beaver Dam Creek channel. Access is available from Velp Avenue via Memorial Drive and from the local street network south of Velp Avenue. A mix of deciduous trees and shrubs along Beaver Dam Creek provides some visual screening from the freeway. Both neighborhoods are shown on the Village of Howard's future land use map as remaining in residential use.

**Figure 3-3: Residential and Business Displacements
(Revised for Final EIS)**



Impacts to the Island Court neighborhood involve purchasing/razing homes to accommodate shifting Beaver Dam Creek west of its present location. Similarly, the 4 homes at the Lone Grove Avenue cul-de-sac will be purchased and razed to accommodate shifting Beaver Dam Creek to the east at this location. The acquired homes presently provide a buffer between other adjacent homes and US 41. Their removal will result in remaining homes becoming the “first row” homes adjacent to US 41.

Residents on the west side of Island Court expressed concern at the August 18, 2010 public information meeting about becoming “first row” homes adjacent to US 41 when the homes on the east side of Island Court are removed. Concerns included increased traffic noise and changes in the visual character of the neighborhood. Other general concerns about the proposed US 41 improvements included proximity effects of wider roadways, changes in travel patterns, and concern about having to move from homes and neighborhoods they have occupied for a long time.

There are no known special occupant characteristics (minority, elderly, disabled, low income) that would require special relocation assistance. Sufficient relocation housing is expected to be available and the number of residential displacements will not cause an undue hardship to the local real estate market. See Conceptual Stage Relocation Plan in Appendix A for more information.

3.5.2 Measures to Mitigate Adverse Effects

Acquisitions and relocations resulting from the US 41 Memorial Drive to County M project will be done in accordance with the Uniform Relocation Act of 1972. This law ensures landowners and tenants are treated fairly when the public interest requires acquisition and relocation of homes and businesses. Eligible persons relocated from their home or business will receive “Just Compensation for Property Acquired.” Other relocation assistance benefits include relocation advisory services, reimbursement of moving expenses, replacement housing payments, down payment assistance, replacement business payments, and business reestablishment expenses. Under State law, no person or business will be displaced unless a comparable replacement home or business is provided.

3.6 Commercial and Industrial Development

Commercial and industrial development adjacent to the US 41 Memorial Drive to County M project lies mostly within the Village of Howard. The main area of commercial development is at the Velp Avenue interchange. This area is part of a series of strip developments along Velp Avenue, Military Avenue, and a portion of Glendale Avenue. These developments are a mixture of highway-oriented uses and neighborhood businesses that include small suburban strip malls, gas stations/convenience stores, taverns and restaurants, small office complexes, and various retail stores. Velp Avenue has historically been the commercial heart of the Village, with much of the activity existing for decades. In recent years, this area has seen considerable redevelopment as older buildings and uses have been replaced or upgraded.

The Village of Howard is well-positioned to compete with larger communities in attracting businesses and industries. The village has 3 large industrial/business parks:

- Howard Industrial Park (575 acres) located in the northeast portion of the Village near Velp Avenue with access to US 41 from County M (Lineville Road). According to the village’s Comprehensive Plan, approximately 260 acres of undeveloped land east of the existing industrial park is available for future development.
- AMS and Lancaster Creek Business Parks (100 acres) located on the village’s south side. According to the village’s Comprehensive Plan, approximately 154 acres of additional land is available for possible future development in the vicinity of this business park.
- US 41/WIS 29 Retail Center (100 acres) located in the northwest quadrant of the US 41/WIS 29 interchange. A Woodman’s grocery store has recently been constructed in this business park.

Industrial development is not prominent in the US 41 Memorial Drive to County M project area. Several small industrial sites are located along the corridor, including one at the US 41 crossing of Memorial Drive, a small site south of the Lakeview Drive overpass, and a small site south of the County M interchange.

3.6.1 Business Displacements

The No Build Alternative would have no business displacements.

As reported in the Draft EIS and in the initial Conceptual Stage Relocation Plan in EIS Appendix A, one business displacement in the southeast quadrant of the Velp Avenue interchange was identified for Alternatives D and E (see Figure 3-3). This business included scuba and snorkeling equipment sales and diving instruction. Since the Draft EIS, WisDOT has learned that the owner of one of the residential displacements in the Island Court area also operates a licensed game farm on his property for the purpose of selling a variety of birds and ducks. Therefore, a total of two businesses would be displaced under Alternatives D and E.

These business displacements are based on the best available design information at this time and are subject to change when more detailed engineering plans are developed. No special relocation assistance is required with respect to the displaced businesses.

3.6.2 Measures to Mitigate Adverse Effects

Acquisitions and relocations resulting from the proposed improvements are done in accordance with the Uniform Relocation Act of 1972. This law ensures landowners and tenants are treated fairly when the public interest requires acquisition and relocation of homes and businesses. Eligible persons relocated from their home or business will receive “Just Compensation for Property Acquired.” Other relocation assistance benefits include relocation advisory services, reimbursement of moving expenses, replacement housing payments, down payment assistance, replacement business payments, and business reestablishment expenses. Under State law, no person or business will be displaced unless a comparable replacement home or business is provided.

3.7 Wetlands

There are numerous wetlands along US 41 and within the interchange areas in the Memorial Drive to County M project corridor. Boundary determinations for wetlands in the project’s area of potential effect were completed by WisDOT in 2006, in consultation with DNR. At that time, the County M interchange was part of a separate WisDOT corridor study (US 41 Green Bay to Abrams, Project I.D. 1150-46-00) for which wetland delineations were completed in 2008 by KL Engineering’s wetland consultant, Natural Resources Consulting Inc. Therefore, the wetlands in the County M interchange area shown on exhibits in this EIS are based on a combination of WisDOT’s 2006 delineations and KL Engineering’s 2008 delineations.

It should be noted that the wetland delineation footprints (shape files) on the EIS maps depict only the portions of wetlands immediately adjacent to US 41 and I-43, and/or adjacent to or within the interchange areas. The actual limits of most of the wetlands extend beyond the delineation footprints.

Updated boundary determinations in the entire Memorial Drive to County M project corridor will be done by WisDOT prior to a Clean Water Act permit application.

Six main wetland types were identified in the project area (See Table 3-11). The wetland types are based on WisDOT’s *Wetland Mitigation Banking Technical Guideline* (as revised in March 2002). Some of the wetlands are currently being infested with invasive Phragmites while others still contain an abundance of diverse vegetation. Depending on their position in the landscape (including proximity to major highways), size, surrounding land use, connectivity to other habitat areas, and proximity to waterways, wetlands in the project area provide benefits such as fish and wildlife habitat, flood storage, groundwater recharge and water quality protection.

Wildlife species living, breeding, and foraging in the area include whitetail deer, raccoons, opossum, turtles, skunks, rabbits, muskrats, other small mammals, frogs, numerous song birds, swallows, Canadian geese, and other waterfowl (mallards, blue-winged teal, woodducks). Other birds seasonally migrate through the area. Waterfowl also nest and raise young in the vicinity of the Duck Creek crossing and the DNR land. The presence of the wetlands and their proximity to Lake Michigan serve as habitat for both regional and migrating species.

Green Bay West Shore Wildlife Area—Peats Lake Unit is a 317 acre wildlife unit located along both sides of US 41. The area consists of a mixture of low density aspen and mixed oaks in the upland areas and ash, tag alder, and open grass in the wetlands.

The Suamico Lacustrine Flats are a large wetland complex located between Velp Avenue and US 41/141. This area has been identified in the Brown County Open Space and Outdoor Recreation Plan as a natural area of local significance. This is a critical area for northern pike spawning habitat.

**Table 3-11
Wetland Types in Project Area**

Wetland Type	Community Type Examples
Aquatic Bed AB	Submergent aquatics (depth less than 3 meters)
Riparian Forested RPF	Wooded floodplain forests, shrub carr and alder thickets in riverine or lacustrine system
Shallow Marsh SM	Emergent aquatics
Shrub Scrub SS	Shrub carr, Alder thicket (deciduous shrubs in wet soil)
Wet Meadow M	Sedge meadows, wet/wet mesic prairie, vernal pools
Wooded Swamp WS	Wet/wet mesic deciduous forests, cedar swamps

3.7.1 Wetland Impacts

There would be no wetland impacts under the No Build Alternative.

Wetland impacts for Build Alternatives D and E are summarized in Table 3-12. This table has been updated to reflect changes in wetland impacts since the Draft EIS based on the project refinements discussed in EIS subsection 2.4.2, and to address EPA's request for more detailed information on the affected wetlands such as functions, values and quality. New wetland exhibits (Exhibits 3-3 through 3-5) have also been provided. The new maps use an aerial photo base to provide better context for the affected wetlands, remaining wetlands, and location with respect to other resources such as publicly owned land.

Wetland impacts as reported in the Draft EIS, and as updated for the Final EIS, are listed in new Table 3-11A. Changes in wetland impacts between the Draft and Final EIS are due primarily to the following:

- Elimination of the 5-leg roundabout at the Velp Avenue interchange reduced wetland impacts for Alternatives D and E by approximately 1.1 acre.
- Extension of the project's north terminus at the County M interchange increased wetland impacts for Alternatives D and E by approximately 2.8 acres. See Final EIS subsection 2.4.2 for more information on extension of the project's north terminus.
- The addition of permanent bridge maintenance access roads at the I-43 interchange would increase wetland impacts for Alternative D by approximately 2.3 acres, and would increase impacts for Alternative E by approximately 3.7 acres. See new Final EIS subsection 3.18.10 for more information on maintenance access roads.
- Other changes in impacts are due to additional design refinements since the Draft EIS.

As discussed in subsection 3.18.7, adjustment of the Green Bay Metropolitan Sewage District (GBMSD) interceptor sewer in the northwest quadrant of the Velp Avenue interchange would require excavating and backfilling a new trench for the relocated sewer. This could involve approximately 0.6 acres of *temporary* wetland impact assuming the backfilled trench would revert to wetland. The conceptual GBMSD utility adjustments are shown in Exhibit 3-9 (Page 78).

As discussed in subsection 3.18.7, potential wetland impacts for the relocated American Transmission Company (ATC) overhead transmission lines would be caused by constructing the footings required for the new towers, and any temporary roads that might be needed to access the new towers. This utility adjustment could involve approximately 0.03 of permanent wetland fill for the new tower footings, and an unknown amount of wetland impact for temporary access roads. The conceptual ATC utility adjustments are shown in Exhibit 3-9.

The utility adjustment impacts would be essentially the same for Alternatives D and E.

Additional potential wetland impacts for the conceptual utility adjustments are not included as part of the project wetland impacts presented in Tables 3-11A or 3-12. Once the final utility adjustments have been determined, GBMSD and ATC will be responsible for NEPA compliance, including environmental documentation and obtaining any required permits for wetland impacts due to their utility adjustments.

Table 3-11A
Difference in Wetland Impacts between Draft and Final EIS

Draft EIS		Final EIS	
Alternative D	Alternative E	Alternative D	Alternative E
AB (0.46 acres)	AB (0.46 acres)	AB (0.46 acres)	AB (0.46 acres)
RPF (0.00 acres)	RPF (0.17 acres)	RPF (0.00 acres)	RPF (0.17 acres)
SM (13.06 acres)	SM (13.11 acres)	SM (11.90 acres)	SM (12.74 acres)
SS (7.53 acres)	SS (7.13 acres)	SS (8.52 acres)	SS (8.04 acres)
M (22.21 acres)	M (20.73 acres)	M (26.59 acres)	M (25.57 acres)
WS (12.12 acres)	WS (12.45 acres)	WS (12.75 acres)	WS (14.06 acres)
Total impact: 55.38 acres	Total impact: 54.05 acres	Total impact: 60.22 acres	Total impact: 61.04 acres

In their comments on the Draft EIS, the U.S. Department of the Interior requested information on potential wetland fragmentation due to the US 41 improvements. The following information addresses this comment.

Wetland impacts for Alternatives D and E are caused primarily by widening the existing freeway and reconstructing the existing interchange ramps. Past wetland fragmentation occurred when the existing freeway was constructed, particularly at the I-43 interchange ramps. There will be no substantive additional wetland fragmentation due to the proposed improvements under Alternatives D and E. As shown on the project exhibits in section 2, and as discussed in subsection 3.7.2, new or reconstructed ramps at the I-43 interchange would utilize bridges that span the wetlands. This will avoid further fragmentation and allow wildlife movement between wetland areas. Obliteration of existing interchange ramp segments would also offset previous wetland fragmentation to some extent.

Since the Draft EIS, WisDOT has identified possible locations for permanent access roads that will be needed for maintenance and protection of the new structures at the I-43 interchange under Alternatives D and E (see new Final EIS subsection 3.18.10 for more information). The need for permanent access roads and other clear areas around the new bridge abutments and piers is driven in part by renewed concern about bridge security by FHWA and AASHTO (American Association of State Highway and Transportation Officials).

The access roads have not yet been designed, but they are typically constructed with clean fill and gravel. The roads would be traversable by wildlife and would be at an elevation that would not restrict flood flow. Culverts would also be installed where needed to maintain hydraulic connections between adjacent wetlands. Therefore, the access roads should not result in any substantive fragmentation of wetlands or wildlife movement corridors.

Table 3-12
Wetland Impacts for Alternatives D and E
(Updated for Final EIS)

Identification Number ¹	Wetland Type ² and Description	Impacts (acres) Alternative D	Impacts (acres) Alternative E (Preferred Alt.)
Memorial Drive to Velp Avenue (Common wetland impacts for Alternatives D and E)			
W-145	<i>Wetland type:</i> SS <i>Characteristics:</i> Adjacent to Beaver Dam Creek and residential development, linear along US 41 <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering	0.12	0.12
W-146	<i>Wetland type:</i> WS <i>Characteristics:</i> Adjacent to Beaver Dam Creek and residential development, linear along US 41 <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering	0.62	0.62
W-147	<i>Wetland type:</i> WS <i>Characteristics:</i> Adjacent to small golf course, linear along US 41 <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	0.43	0.43
W-148	<i>Wetland type:</i> SM <i>Characteristics:</i> Adjacent to small golf course, linear along US 41 <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	0.29	0.29
W-149	<i>Wetland type:</i> WS <i>Characteristics:</i> Adjacent to small golf course, Duck Creek and residential development, linear along US 41 <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering	1.26	1.26
W-150	<i>Wetland type:</i> SS <i>Characteristics:</i> Adjacent to Beaver Dam Creek and residential development, linear along US 41 <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering	0.47	0.47
W-151	<i>Wetland type:</i> AB (Beaver Dam Creek) <i>Characteristics:</i> Streambed <i>Primary functions/values:</i> Fishery and aquatic habitat	0.46	0.46
W-152	<i>Wetland type:</i> WS <i>Characteristics:</i> Adjacent to Beaver Dam Creek and residential development, linear along US 41 <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering	0.40	0.40
W-153	<i>Wetland type:</i> SM <i>Characteristics:</i> Adjacent to Duck Creek and residential development, linear along US 41 <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering	0.34	0.34
W-154	<i>Wetland type:</i> SM <i>Characteristics:</i> Adjacent to Beaver Dam Creek and residential development, linear along US 41 <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering	1.14	1.14
Notes: ¹ Wetland identification numbers W-000 are based on WisDOT's numbering system for wetland delineations along the US 41 corridor in Brown County. Skipped numbers are wetlands outside the project's area of effect. Wetland identification numbers KL-000 are based on KL Engineering's numbering system for wetland delineations in the County M interchange area that were completed under a separate WisDOT corridor study (US 41 Green Bay to Abrams, Project I.D. 1150-46-00). ² Wetland types are based on WisDOT's <i>Wetland Mitigation Banking Technical Guideline</i> .			

Identification Number ¹	Wetland Type ² and Description	Impacts (acres) Alternative D	Impacts (acres) Alternative E (Preferred Alt.)
W-155	<i>Wetland type:</i> SM <i>Characteristics:</i> Adjacent to Beaver Dam Creek and residential development, linear along US 41 <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering	0.02	0.02
W-156	<i>Wetland type:</i> SS <i>Characteristics:</i> Adjacent to Beaver Dam Creek and residential development, linear along US 41 <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering	0.08	0.08
W-157	<i>Wetland type:</i> SM <i>Characteristics:</i> Adjacent to Beaver Dam Creek and residential development, linear along US 41 <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering	0.26	0.26
W-158	<i>Wetland type:</i> SS <i>Characteristics:</i> Adjacent to Beaver Dam Creek and residential development, linear along US 41 <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering	0.02	0.02
Velp Avenue to Lakeview Drive (Wetland impacts differ for Alternatives D and E in I-43 Interchange area)			
W-160	<i>Wetland type:</i> SS <i>Characteristics:</i> Along east of edge of Black Forest Restaurant property that abuts Duck Creek, linear along US 41 <i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering	0.34	0.53
W-161	<i>Wetland type:</i> SS <i>Characteristics:</i> Small linear wetland area adjacent to commercial development, US 41 and the CN Railroad <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	0.09	0.09
W-162	<i>Wetland type:</i> SM <i>Characteristics:</i> Small linear wetland area adjacent to commercial development, US 41 and the CN Railroad <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	0.52	0.52
W-163	<i>Wetland type:</i> SM <i>Characteristics:</i> Along north side of Black Forest Restaurant property, adjacent to Duck Creek and CN Railroad <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering	0.14 ³	0.98 ³
W-164	<i>Wetland type:</i> WS <i>Characteristics:</i> Along north side of Black Forest Restaurant property, adjacent to Duck Creek and CN Railroad <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering	0.00 ³	0.23 ³
W-165	<i>Wetland type:</i> SS <i>Characteristics:</i> Small linear wetland area adjacent to commercial development, US 41 and the CN Railroad <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	0.05	0.05
Note: ³ Wetland impact entries for W-163 and W-164 have been updated to exclude previous impacts for the 5-leg roundabout at the Velp Avenue interchange that is no longer being considered.			

Identification Number ¹	Wetland Type ² and Description	Impacts (acres) Alternative D	Impacts (acres) Alternative E (Preferred Alt.)
W-166	<i>Wetland type:</i> WS <i>Characteristics:</i> East edge of larger wetland complex within the Gordon Nauman Conservation Area and that's adjacent to Duck Creek <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering, wildlife habitat	1.82	1.59 <hr style="border-top: 1px dashed black;"/> 0.21 ⁴
W-167	<i>Wetland type:</i> SM <i>Characteristics:</i> West edge of larger linear wetland complex between I-43 and the CN Railroad with hydraulic connection near Military Avenue to wetlands in the northeast quadrant of the I-43 interchange <i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering, wildlife habitat	0.68	0.68
W-168	<i>Wetland type:</i> SS <i>Characteristics:</i> West edge of larger linear wetland complex between I-43 and the CN Railroad with hydraulic connection near Military Avenue to wetlands in the northeast quadrant of the I-43 interchange <i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering, wildlife habitat	0.27	0.27
W-170	<i>Wetland type:</i> SM <i>Characteristics:</i> Isolated wetland area within I-43 interchange loop ramp <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	0.33	0.33
W-171	<i>Wetland type:</i> SM <i>Characteristics:</i> Isolated wetland area within I-43 interchange loop ramp <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	0.81	0.81
W-172	<i>Wetland type:</i> SM <i>Characteristics:</i> Isolated wetland area within I-43 interchange loop ramp <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	1.23	1.23
W-173	<i>Wetland type:</i> WS <i>Characteristics:</i> Isolated wetland area within I-43 interchange loop ramp <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	1.64	1.64
W-174	<i>Wetland type:</i> SS <i>Characteristics:</i> Isolated wetland area within I-43 interchange loop ramp <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	1.89	1.89
W-175	<i>Wetland type:</i> SM <i>Characteristics:</i> Isolated wetland area within I-43 interchange loop ramp <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	1.16	1.16
W-176	<i>Wetland type:</i> WS <i>Characteristics:</i> Isolated wetland area within I-43 interchange loop ramp <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	2.04	2.04
W-177	<i>Wetland type:</i> SM <i>Characteristics:</i> Isolated wetland area within I-43 interchange loop ramp <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	2.66	2.66

Note:

⁴ Wetland impact entries for W-166, W-181, W-203, and W-205 include estimated additional impacts for the permanent maintenance access roads under Alternatives D and E.

Identification Number ¹	Wetland Type ² and Description	Impacts (acres) Alternative D	Impacts (acres) Alternative E (Preferred Alt.)
W-178	<i>Wetland type:</i> SM <i>Characteristics:</i> Isolated wetland area within I-43 interchange loop ramp <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	0.52	0.52
W-179	<i>Wetland type:</i> WS <i>Characteristics:</i> Isolated wetland area within I-43 interchange loop ramp <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	0.77	0.77
W-180	<i>Wetland type:</i> SM <i>Characteristics:</i> Isolated wetland area within I-43 interchange ramps <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	1.37	1.37
W-181	<i>Wetland type:</i> WS <i>Characteristics:</i> West portion of larger linear wetland complex between I-43 and the CN Railroad with hydraulic connection near Military Avenue to wetlands in the northeast quadrant of the I-43 interchange <i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering, wildlife habitat	1.94	2.18 ----- 0.69 ⁴
W-184	<i>Wetland type:</i> M <i>Characteristics:</i> Small wetland area between Wietor Drive and I-43, hydraulic connection near Military Avenue to wetlands north of I-43 <i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering	1.25	0.64
W-186	<i>Wetland type:</i> RPF <i>Characteristics:</i> Ditch in small wetland area between Wietor Drive and I-43 with hydraulic connection near Military Avenue to wetlands in the northeast quadrant of the I-43 interchange <i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering	0.00	0.01
W-188	<i>Wetland type:</i> M <i>Characteristics:</i> Small wetland area between Wietor Drive and I-43, hydraulic connection near Military Avenue to wetlands north of I-43 <i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering	0.00	0.06
W-190	<i>Wetland type:</i> M <i>Characteristics:</i> Part of linear wetland complex between I-43 and CN Railroad, south of Military Avenue <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering, wildlife habitat	0.00	0.13
W-191	<i>Wetland type:</i> SS <i>Characteristics:</i> Part of linear wetland complex between I-43 and CN Railroad, south of Military Avenue <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering, wildlife habitat	0.00	0.10
W-202	<i>Wetland type:</i> RPF <i>Characteristics:</i> South edge of large wetland complex that extends to Duck Creek and the Bay of Green Bay, adjacent to ditch that connects to Duck Creek, adjacent to Ken Evers Nature Area <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering, wildlife habitat	0.00	0.16
Note: ⁴ Wetland impact entries for W-166, W-181, W-203, and W-205 include estimated additional impacts for the permanent maintenance access roads under Alternatives D and E.			

Identification Number ¹	Wetland Type ² and Description	Impacts (acres) Alternative D	Impacts (acres) Alternative E (Preferred Alt.)
W-203	<i>Wetland type:</i> M <i>Characteristics:</i> West edge of large wetland complex adjacent to Duck Creek and the Bay of Green Bay, encompasses the Ken Euers Nature Area <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering, wildlife habitat	7.60 ----- 1.67 ⁴	6.51 ----- 2.20 ⁴
W-204	<i>Wetland type:</i> WS <i>Characteristics:</i> Between Duck Creek and I-43 interchange ramp, and within Wietor Wharf Park <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering, wildlife habitat	0.07	0.07
W-205	<i>Wetland type:</i> SS <i>Characteristics:</i> South edge of large wetland complex that extends to Duck Creek and the Bay of Green Bay <i>Primary functions/values:</i> Water quality protection, flood attenuation, groundwater recharge, stormwater runoff buffering, wildlife habitat	0.57 ----- 0.70 ⁴	0.63 ----- 0.61 ⁴
W-206	<i>Wetland type:</i> SS <i>Characteristics:</i> Between Duck Creek and I-43 interchange ramp, and within Wietor Wharf Park <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering, wildlife habitat	0.75	0.37
W-208	<i>Wetland type:</i> SS <i>Characteristics:</i> Between US 41 and West Deerfield Avenue, extends to Duck Creek, partially within Deerfield Docks Park <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering, wildlife habitat	0.91	0.41
W-209	<i>Wetland type:</i> M <i>Characteristics:</i> Isolated portion between US 41 and East Deerfield Avenue, linear extension along east side of US 41 <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff	3.93	3.32
W-210	<i>Wetland type:</i> WS <i>Characteristics:</i> West edge of large wetland complex adjacent to Duck Creek and the Bay of Green Bay, within the Peats Lake Unit <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering, wildlife habitat	0.15	0.32
W-211	<i>Wetland type:</i> SS <i>Characteristics:</i> West edge of large wetland complex adjacent to Duck Creek and the Bay of Green Bay, within the Peats Lake Unit <i>Primary functions/values:</i> Water quality/shoreline protection, flood attenuation, groundwater recharge, stormwater runoff buffering, wildlife habitat	0.30	0.44
W-229	<i>Wetland type:</i> M <i>Characteristics:</i> Small area between I-43, Military Avenue, and frontage road; linear extension along roadway ditch <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	0.00	0.46
W-232	<i>Wetland type:</i> M <i>Characteristics:</i> Small area between I-43, Military Avenue and frontage road, hydraulic connection to wetlands north of I-43 <i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering	0.00	0.11
Note: ⁴ Wetland impact entries for W-166, W-181, W-203, and W-205 include estimated additional impacts for the permanent maintenance access roads under Alternatives D and E.			

Identification Number ¹	Wetland Type ² and Description	Impacts (acres) Alternative D	Impacts (acres) Alternative E (Preferred Alt.)
Lakeview Drive to County M with extended project terminus (Common wetland impacts for Alternatives D and E)			
W-212	Wetland type: M Characteristics: Isolated portion between US 41 and West Deerfield Avenue, linear extension along west side of US 41 Primary functions/values: Groundwater recharge, stormwater runoff buffering	1.32	1.32
W-213	Wetland type: WS Characteristics: Small WS portion of W-209 between US 41 and East Deerfield Avenue Primary functions/values: Groundwater recharge, stormwater runoff buffering	0.42	0.42
W-214	Wetland type: M Characteristics: Isolated portion between US 41 and West Deerfield Avenue, linear extension along west side of US 41 Primary functions/values: Groundwater recharge, stormwater runoff buffering	2.28	2.28
W-215	Wetland type: M Characteristics: Isolated portion between US 41 and East Deerfield Avenue, linear extension along east side of US 41 Primary functions/values: Groundwater recharge, stormwater runoff buffering	0.84	0.84
W-216	Wetland type: WS Characteristics: Patch of WS within W-215, isolated between US 41 and East Deerfield Avenue Primary functions/values: Groundwater recharge, stormwater runoff buffering	0.15	0.15
W-217	Wetland type: M Characteristics: Isolated between US 41 NB ramp, County M, and East Deerfield Avenue Primary functions/values: Groundwater recharge, stormwater runoff buffering	1.00	1.00
W-218	Wetland type: SM Characteristics: Isolated between US 41 NB ramp, County M, and East Deerfield Avenue Primary functions/values: Groundwater recharge, stormwater runoff buffering	0.01	0.01
W-219	Wetland type: M Characteristics: Isolated between US 41, County M, and NB ramp Primary functions/values: Groundwater recharge, stormwater runoff buffering	1.03	1.03
W-220	Wetland type: SS Characteristics: Isolated between West Deerfield Avenue, County M and US 41 SB ramp Primary functions/values: Groundwater recharge, stormwater runoff buffering	0.60	0.60
KL-16	Wetland type: WS Characteristics: Linear wetland along south side of County M Primary functions/values: Groundwater recharge, stormwater runoff buffering	0.25	0.25
KL-18	Wetland type: M Characteristics: Isolated between US 41, County M, and SB ramp Primary functions/values: Groundwater recharge, stormwater runoff buffering	0.21	0.21
KL-24	Wetland type: M Characteristics: Adjacent to East Deerfield Avenue and commercial development along frontage road Primary functions/values: Groundwater recharge, stormwater runoff buffering	0.07	0.07

Identification Number ¹	Wetland Type ² and Description	Impacts (acres) Alternative D	Impacts (acres) Alternative E (Preferred Alt.)
KL-25	<p><i>Wetland type:</i> WS</p> <p><i>Characteristics:</i> Linear along south side of County M, north edge of larger wetland complex bordered by US 41, County M, and County J</p> <p><i>Primary functions/values:</i> Water quality protection, flood attenuation, groundwater recharge, stormwater runoff buffering, wildlife habitat</p>	0.48	0.48
W-221	<p><i>Wetland type:</i> M</p> <p><i>Characteristics:</i> Between West Deerfield Avenue and US 41 SB ramp, adjacent to ditch that runs across north half of County M interchange and provides hydraulic connection to Bay of Green Bay</p> <p><i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering, wildlife habitat, fishery habitat (per DNR, ditch provides northern pike spawning)</p>	0.47	0.47
W-222	<p><i>Wetland type:</i> SS</p> <p><i>Characteristics:</i> Between West Deerfield Avenue and US 41 SB ramp, adjacent to ditch that runs across north half of County M interchange and provides hydraulic connection to Bay of Green Bay</p> <p><i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering, wildlife habitat, fishery habitat (per DNR, ditch provides northern pike spawning)</p>	0.78	0.78
W-223	<p><i>Wetland type:</i> M</p> <p><i>Characteristics:</i> Between US 41 and SB ramp, adjacent to ditch that runs across north half of County M interchange and provides hydraulic connection to Bay of Green Bay</p> <p><i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering, wildlife habitat, fishery habitat (per DNR, ditch provides northern pike spawning)</p>	1.17	1.17
W-224	<p><i>Wetland type:</i> M</p> <p><i>Characteristics:</i> Between US 41 and NB ramp, ditch through wetland provides hydraulic connection to Bay of Green Bay</p> <p><i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering, fishery habitat (per DNR, ditch provides northern pike spawning)</p>	0.61	0.61
W-225	<p><i>Wetland type:</i> SM</p> <p><i>Characteristics:</i> Between US 41 and NB ramp, ditch through wetland provides hydraulic connection to Bay of Green Bay</p> <p><i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering, fishery habitat (per DNR, ditch provides northern pike spawning)</p>	0.42	0.42
W-226	<p><i>Wetland type:</i> M</p> <p><i>Characteristics:</i> Between East Deerfield Avenue, County M, and US 41 NB ramp, ditch through wetland provides hydraulic connection to Bay of Green Bay</p> <p><i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering, fishery habitat (per DNR, ditch provides northern pike spawning)</p>	1.99	1.99
W-227	<p><i>Wetland type:</i> SS</p> <p><i>Characteristics:</i> Between East Deerfield Avenue, County M, and US 41 NB ramp, ditch through wetland provides hydraulic connection to Bay of Green Bay</p> <p><i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering, fishery habitat (per DNR, ditch provides northern pike spawning)</p>	0.58	0.58
KL-26	<p><i>Wetland type:</i> M</p> <p><i>Characteristics:</i> Linear portion along north side of County M and west edge of larger wetland complex adjacent to East Deerfield Avenue, ditches in both portions provide hydraulic connection to Bay of Green Bay</p> <p><i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering, fishery habitat (per DNR, ditch provides northern pike spawning), wildlife habitat (portion adjacent to East Deerfield Avenue)</p>	0.58	0.58

Identification Number ¹	Wetland Type ² and Description	Impacts (acres) Alternative D	Impacts (acres) Alternative E (Preferred Alt.)
KL-32	<i>Wetland type:</i> M <i>Characteristics:</i> Linear wetland between US 41 and West Deerfield Avenue <i>Primary functions/values:</i> Groundwater recharge, stormwater runoff buffering	0.57	0.57
KL-35	<i>Wetland type:</i> WS <i>Characteristics:</i> South and east edge of larger wetland complex (Suamico Lacustrine Flats), hydraulic connection to ditch that runs through north half of County M interchange <i>Primary functions/values:</i> Water quality protection, groundwater recharge, stormwater runoff buffering, wildlife habitat, fishery habitat (per DNR, ditch provides northern pike spawning)	0.31	0.31
Impact Totals		60.22	61.04

3.7.2 Measures to Minimize Adverse Effects

Presidential Executive Order 11990, Protection of Wetlands, requires federal agencies to avoid, to the extent practicable, long term and short term adverse impacts associated with the destruction or modification of wetlands. More specifically, the order directs federal agencies to avoid new construction in wetlands unless there is no practicable alternative. The order states that where wetlands cannot be avoided, the proposed action must include all practicable measures to minimize harm to wetlands.

The Clean Water Act's Section 404(b)1 Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR Part 230) are administered by EPA and the USACE. The guidelines state that dredged or fill material should not be discharged into aquatic ecosystems (including wetlands), unless it can be demonstrated that there are no practicable alternatives to such discharge; that such discharge will not have unacceptable adverse impacts; and that all practicable measures to mitigate adverse effects are undertaken.

Wetland Avoidance

Due to the scattered location of wetlands in the US 41 corridor, proximity to the existing highway, and locations within the interchange areas, it isn't possible to completely avoid wetland impacts for the Build Alternatives. Specific measures taken to avoid wetland impacts for Build Alternatives D and E include the following.

- Access to Wietor Wharf Park – Access to this park is currently provided along Wietor Drive, which intersects Military Avenue. This is a fairly long road and requires a lengthy route for residents of the Village of Howard traveling to and from the park. Coordination with local officials indicated a preference for an alternate route off Velp Avenue or Memorial Drive. Neither of those options were selected, because construction of a new access road, either from Velp Avenue or Memorial Drive, would have included additional wetland impacts west of US 41 as well as requiring an additional railroad crossing.
- Another option considered was to reroute Wietor Drive to the south to parallel the railroad tracks and extend it under the proposed new US 41 bridges over the railroad. This option would have involved adding an extra span to those bridges. Keeping Wietor Drive in its existing location would require adding two bridges under US 41 with Alternative E and adding additional spans to proposed bridges under Alternative D. However, because of the wetland impacts that would result from the rerouting of this road, the decision was to maintain Wietor Drive in its current location and construct the additional bridges as necessary.

- East and West Deerfield Avenue frontage roads – These frontage roads parallel US 41 between Duck Creek and County M. While the existing separation distance between the frontage roads and US 41 does not meet minimum design standards (see Section 1), WisDOT determined that moving the frontage roads up to 35 feet farther away from US 41 to meet minimum standards would cause substantial impacts to wetlands and abutting development. Therefore, the existing separation distance will be maintained, resulting in wetland avoidance and minimization of environmental impacts.

Minimization of Wetland Impacts

Specific measures taken to minimize wetland impacts for Build Alternatives D and E are summarized below:

Alternative D

- Utilizing minimum design speeds and maintaining the loop ramp configuration at the I-43 interchange
- Shifting the proposed ramp alignments at the I-43 interchange as close as possible to the existing interchange to minimize impacts to undisturbed wetlands
- Utilizing a bridge instead of fill embankment for the northbound I-43 to northbound US 41 ramp
- Use of retaining walls along southbound US 41 adjacent to Duck Creek and northbound US 41 near Beaver Dam Creek
- Use of beamguard in high fill areas to allow for steeper slopes

Alternative E

- Utilizing 60 mph design speeds instead of the desirable 70 mph design speed for the ramps connecting I-43 to southbound US 41
- Lengthening the following structures to span over wetland areas instead of using embankment fill
 - Northbound I-43 to southbound US 41
 - Northbound US 41 to southbound I-43
 - Northbound I-43 to northbound US 41
 - Southbound US 41 off-ramp to Velp Avenue
- Use of retaining walls along southbound US 41 adjacent to Duck Creek and northbound US 41 near Beaver Dam Creek
- Use of beamguard in high fill areas to allow for steeper slopes

The construction and permanent maintenance access roads for Alternatives D and E, as discussed in subsection 3.18.10, are being designed to follow as close to the proposed bridge locations as possible to minimize wetland impacts. The permanent maintenance roads will have a minimal width of approximately 18 feet and the side slopes will be as steep as practicable to further minimize wetland impacts.

Compensation for Unavoidable Wetland Impacts

Compensation for unavoidable wetland loss will be done in accordance with WisDOT's Wetland Mitigation Banking Technical Guideline developed as part of the WisDOT-DNR Cooperative Agreement on Compensatory Wetland Mitigation. The guideline was developed by WisDOT in 1993 and updated it in 1997 and 2002 in cooperation with the DNR, USACE, EPA, Fish and Wildlife Service, and FHWA.

The guideline states that preference should be given for compensatory mitigation in the vicinity of the impacted area (on-site). Where such opportunities are not present or practical, mitigation within the same watershed as the impacted wetlands (near-site) should be explored. If on-site or near-site mitigation is not available, WisDOT would debit the wetland loss at the closest established wetland mitigation bank.

The guideline also recommends compensation ratios for wetland debits from an established wetland mitigation bank. The wetland compensation ratios reflect the types of impacted wetlands versus types available at the established wetland bank and whether the wetland bank is in the same watershed as the impacted wetlands. In addition, there was discussion with the DNR and USACE about mitigation ratios for wetland impacts underneath bridges. These ratios will be determined as further detailed design is completed for the project.

WisDOT has purchased approximately 212 acres of land for construction of the Resort Road wetland mitigation site which will be used to compensate wetland loss in the overall US 41 corridor in Brown County.

The Resort Road site is located approximately 3.5 miles north of this project, in the township of Suamico, T25N, R20E, Sections 11, 12, 13 and 14 (see Figure 3-4), and it lies within the same watershed as wetlands affected by the US 41 project. Final design of the mitigation site is underway and construction will begin in 2011. The site will ultimately be owned and maintained by DNR.

The Resort Road mitigation site is being constructed on land that historically has been primarily in agricultural use. Based on wetland delineations done in summer of 2010, the mitigation site also contains approximately 38 acres of existing wetland and there are two drainage channels that flow through the site.

The goal of the Resort Road mitigation site is to provide a self-sustaining wetland site that blends with the surrounding area and increases fish spawning and wildlife habitat. A key objective of the site is modification of the existing drainageways to create additional wetland areas. Flow in the modified drainageways will be controlled to provide benefits to Northern Pike spawning, waterfowl and wildlife habitat. Areas within the site will also be excavated to provide sustained open water pools. The site will provide a combination of Wet Meadow (M), Riparian Forested (RPF), Shallow Marsh (SM), and Deep Marsh (DM) wetland types. It will also include upland buffer areas to enhance wildlife habitat. The Resort Road mitigation site will ultimately be owned and maintained by DNR. During the 10-year monitoring period, the site will be maintained by WisDOT and thereafter, WisDOT would provide assistance to DNR if, for example, the site would be severely damaged by an extreme event.

Key design features of the Resort Road mitigation site include the following:

- Modify existing drainageways to create, restore and enhance wetland on land that is currently being farmed.
- Construct weirs and install culvert pipes in the modified drainageways to maintain water levels beneficial to Northern Pike spawning and waterfowl habitat.
- Excavate at select locations to provide sustained water pools and deep marsh pockets beneficial to waterfowl and other wildlife.
- Construct berms at select locations to restrict fish passage and eliminate off-site water backup.

At this time, it is anticipated that approximately 121.55 acres of wetland will be created, restored or enhanced at the Resort Road site. Estimated wetland types include the following:

- Wet Meadow (M)—60.11 acres
- Riparian Forested (RPE)—33.06 acres
- Shallow Marsh (SM)—18.09 acres
- Deep Marsh (DM)—10.29 acres

Based on the Clean Water Act Section 404 permit for the Orange Lane to Memorial Drive portion of the US 41 corridor, approximately 53 acres of affected wetland will be compensated at the Resort Road mitigation site. With debit adjustments per the Wetland Banking Technical Guideline, approximately 71 acres will be debited to the Resort Road site for the Orange Lane to Memorial Drive portion of the US 41 corridor. This leaves approximately 51 acres of available compensation for the US 41 Memorial Drive to County M project section, which will not be sufficient to fully compensate wetland loss for this project section.

At this time WisDOT is evaluating another wetland mitigation site located in the town of Freedom in Outagamie County (T22N, R18 E, Sections 16 and 21). See Figure 3-4A. The "Freedom" mitigation site is approximately 75 acres in size and consists mostly of a former wetland area that is currently being drained with drain tiles and a pump. The site is adjacent to Duck Creek and it is within the same watershed as wetlands affected by the US 41 project. Initial investigations in consultation with the USACE and DNR indicate this is a viable wetland restoration site, and WisDOT plans to purchase the land in summer 2011. More detailed study will be done to develop the restoration plan, but initial

indications are that breaking the drain tiles and removing the pump will be the main factors in restoring this site to wetland characteristics.

Another wetland compensation option would be to use WisDOT's established Hope Marsh wetland mitigation bank in southeastern Marquette County. The Hope Marsh wetland mitigation bank is approximately 558 acres in size with over 300 acres currently remaining for wetland mitigation debits. It primarily includes shallow marsh, deep marsh and riparian emergent wetland types. Wetlands impacted by the Memorial Drive to County M project are located in the Northern Fox/Lake Michigan watershed and the Hope Marsh wetland bank is located in the Southern Fox/Lake Michigan watershed.

All wetland loss for the Memorial Drive to County M project will be fully compensated and there will be no net loss of wetlands due to this project. As indicated in Table 3-12, primary functions and values of wetlands impacted by the US 41 improvements include groundwater recharge, water quality protection, flood attenuation, shoreline protection, stormwater runoff buffering, wildlife and fishery habitat. The Resort Road and Freedom mitigation sites will provide similar functions and values (groundwater recharge, water quality protection, buffering of stormwater runoff from agricultural land, and enhanced fishery and wildlife habitat). The Hope Marsh wetland mitigation bank site also provides similar functions and values in the event WisDOT is unable to locate another nearby restoration site like the Resort Road site.

Figure 3-4: Resort Road Wetland Mitigation Site Location

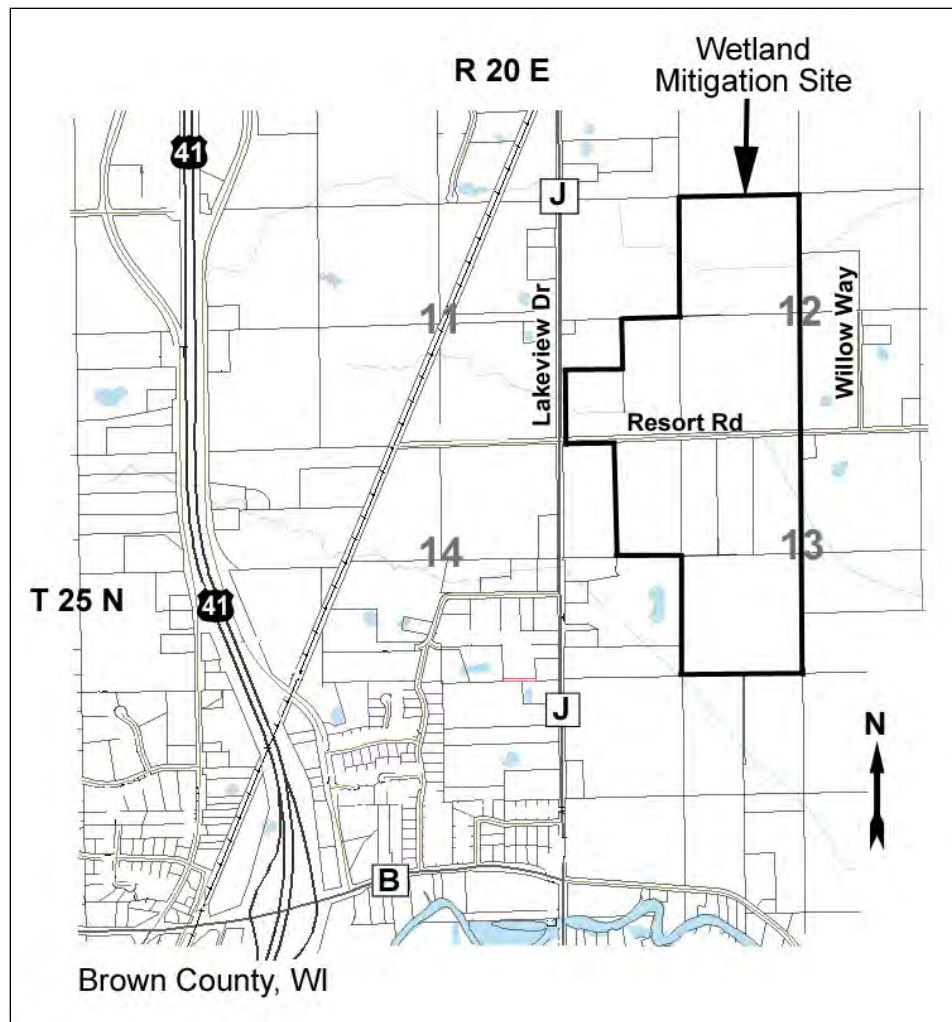
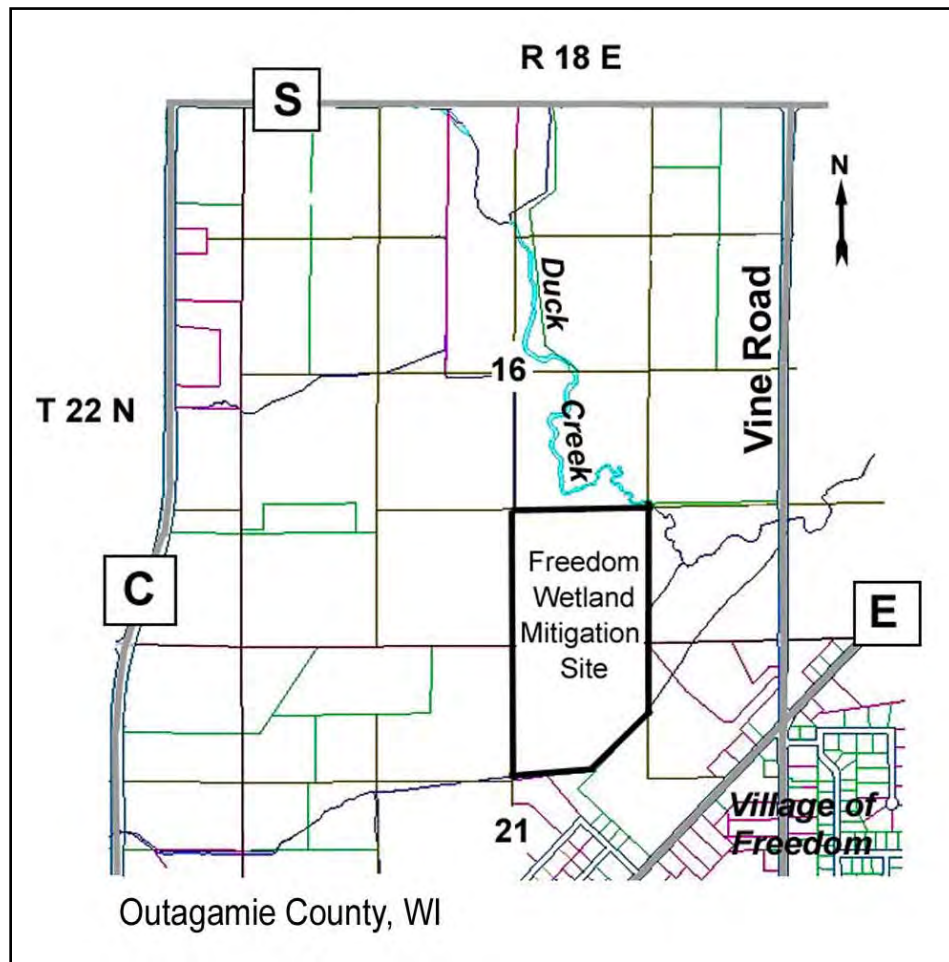


Figure 3-4A: Proposed Freedom Wetland Mitigation Site Location



3.7.3 Wetlands—Only Practicable Alternative Finding

Basis for Finding

Presidential Executive Order 11990, *Protection of Wetlands*, requires federal agencies to avoid new construction in wetlands unless there is no practicable alternative, and where wetlands cannot be avoided, the proposed action must include all practicable measures to minimize harm to wetlands.

The Clean Water Act's Section 404(b)(1) *Guidelines for Specification of Disposal Sites for Dredged or Fill Material* state that dredged or fill material should not be discharged into aquatic ecosystems (including wetlands), unless it can be demonstrated that there are no practicable alternatives to such discharge; that such discharge will not have unacceptable adverse impacts; and that all practicable measures to mitigate adverse effects are undertaken.

Summary of Alternatives Considered

Detailed information on alternatives is provided in EIS section 2. The No Build Alternative (Alternative A) would avoid wetland impacts, but this alternative was eliminated from further consideration because it would not meet project purpose and need. Four build alternatives (Alternatives B, C, D, and E) were initially considered for purposes of the Draft EIS. Alternatives B and C were eliminated from further consideration

prior to the March 2, 2011 public hearing (see section 2 for more information). The main reasons for eliminating Alternative B included inability to address operational and safety issues resulting from the short weaving section along the US 41 mainline, and incompatibility with possible future conversion of US 41 to an interstate facility. Alternative C was eliminated primarily because it would not provide any benefits in traffic operations and safety compared to Alternative D and yet would have a larger impact footprint than Alternative D, including more impacts to public use lands and higher quality wetlands in the northwest quadrant of the I-43 interchange.

Alternatives D and E were carried forward for detailed study in the Draft EIS and for presentation at the public hearing.

At the Draft EIS stage, wetland impacts for Alternative D were estimated at 55 acres and impacts for Alternative E were estimated at 54 acres. Based on design refinements since the Draft EIS, as discussed in subsection 2.4.2, updated wetland impacts for Alternative D are now estimated at 60.2 acres and wetland impacts for Alternative E are estimated at 60.5 acres.

Determination of No Practicable Alternative

After reviewing public and agency input received during the public hearing and Draft EIS comment period, WisDOT and FHWA selected Alternative E, with the design refinements discussed in subsection 2.4.2, as the preferred alternative. Alternative E was selected as the preferred alternative for the following key reasons:

- Alternative E would be more compatible than Alternative D with future conversion of US 41 to an interstate facility. With elimination of the loop ramps under Alternative E, all traffic movements at the I-43 interchange would have a high level of service (LOS A or B) in the design year. By comparison, traffic movements at the I-43 interchange under Alternative D would operate at about LOS C which is acceptable but not desirable for an interstate freeway-to-freeway systems interchange.
- The tight loop ramp configurations that would remain with Alternative D are less desirable than the directional ramps included with Alternative E, especially for large trucks utilizing this interchange.
- Both Alternatives D and E would operate at LOS C or better, however the directional ramps included with Alternative E would provide better traffic operations than the loop ramps under Alternative D. All movements for Alternative E would operate at either LOS A or B in the design year.
- The connections between I-43 and US 41 to the south would meet a 60 mph design speed under Alternative E. This is more desirable than the loop ramps under Alternative D that would accommodate those movements at a 30 mph design speed.
- Although minor improvements to the loop ramps at the I-43 interchange would be made under Alternative D, they would still have essentially the same configuration as the existing loop ramps. Even with reflective chevrons, guard rail and additional warning signs, there would still be a potential for truck rollovers due to the combination of tight curve radii and reverse curves. In addition, the speed differential between the US 41 mainline and the loop ramps could increase the risk of rear-end crashes as well as rollover crashes within the loop ramps.

In summary, Alternative E is considered to be the “environmentally preferred alternative” providing a balance among sound engineering design, addressing long term mobility needs and safety concerns, and minimizing impacts to existing development and natural resources (including wetlands) to the maximum extent practicable.

As discussed in subsection 2.4.3, participating and cooperating agencies have concurred in Preferred Alternative E.

Measures to Minimize Harm/ Wetland Compensation

Information on wetland avoidance, minimization of wetland impacts, and compensation for unavoidable wetland impacts is provided in subsection 3.7.2. Due to the scattered location of wetlands in the project corridor, proximity to the existing highway, and locations within existing interchange areas, isn't possible to completely avoid wetlands impacts.

Key measures to avoid some wetland impacts for preferred Alternative E include the following:

- Elimination of the 5-leg roundabout design option at the Velp Avenue interchange
- Maintain current access to Wietor Wharf Park via existing Wietor Drive
- Maintain existing separation distance between the US 41 mainline and the frontage roads between Duck Creek and County M

Key measures to minimize wetland impacts for preferred Alternative E include the following:

- Utilizing 60 mph design speeds instead of the desirable 70 mph design speed for the ramps connecting I-43 to southbound US 41
- Lengthening several structures to span over wetland areas instead of using embankment fill
- Utilizing retaining walls near Duck Creek and Beaver Dam Creek
- Utilizing beamguard in high fill areas to allow for steeper slopes

As discussed in subsection 3.7.2, compensation for unavoidable wetland loss will be done in accordance with WisDOT's Wetland Mitigation Banking Technical Guideline. Based on the Clean Water Act Section 404 permit for the Orange Lane to Memorial Drive portion of the US 41 corridor, approximately 71 acres will be debited to the Resort Road site for this portion of the US 41 corridor. This leaves approximately 51 acres of available compensation for the US 41 Memorial Drive to County M project section.

As discussed previously, WisDOT is in the process of evaluating and developing another wetland mitigation site in the town of Freedom in Outagamie County. Remaining availability at the Resort Road site along with the new Freedom mitigation site will fully compensate wetland loss for the US 41 Memorial drive to County M project, and there will be no net loss of wetlands due to the project.

Wetland Finding

Based on the above considerations in accordance with Presidential Executive Order 11990 and Clean Water Act's Section 404(b)1 Guidelines, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands that will result from such use.

3.8 Streams and Floodplains

There are two streams in the US 41 Memorial Drive to County M project corridor, Duck Creek and Beaver Dam Creek. Stream conditions and characteristics are summarized below.

Duck Creek

Duck Creek is a 42-mile hard water stream that originates in Burma Swamp, located in central Outagamie County, and winds northeast until it empties into the bay of Green Bay, just north of the City of Green Bay. Tributaries to Duck Creek include; Beaver Dam Creek, Lancaster Creek, Thornberry Creek, and Trout Creek. There are 5-point source dischargers (municipal and industrial) in the watershed, but none in the US 41 Memorial Drive to County M project area.

The drainage area of the Duck Creek watershed encompasses 152 square miles with land use in the upper portion being primarily agricultural and the lower portion being predominantly residential and urban. According to the DNR watershed detail, Duck Creek is adversely affected by agricultural practices, ditching, and lack of stream bank buffer areas resulting in erosion, turbidity, warmer temperatures and lower dissolved oxygen levels. There are also dramatic water level fluctuations. Duck Creek's overall water quality and stream habitat is rated poor to fair, with documented problems of sedimentation, phosphorous, filamentous algae, and heavy metals.

The Oneida Nation Conservation Field Office has a Duck Creek monitoring station in Pamperin Park, which is located on the south side of WIS 29, west of the US 41/WIS 29 interchange. Based on electro shocking conducted by the Oneida Nation field office in 2005, common fish species in Duck Creek include yellow perch, carp, white sucker, rock bass, gizzard shad, Johnny darter, creek chub, log perch, common shiner, bluntnose minnow, longnose dace, and blackside darter. Invertebrate species indicate good water quality conditions. Potential pollution sources include sediment, nutrients, pesticides, and PCB's due to agricultural and construction practices, and past paper mill discharges. While pollution occurs in different locations of Duck Creek, it is not anticipated to be encountered during construction of this project.

Duck Creek is on EPA's 2010 impaired waterway list under Section 303(d) of the Clean Water Act due to low Dissolved Oxygen (DO) levels caused by nonpoint source runoff. Impaired waters are those not meeting state water quality standards or those for which designated uses are not being achieved. Depending on the impairment, restrictions could be placed on discharges to protect aquatic life, and on fish consumption and recreational contact to protect public health.

No restrictions are noted on Duck Creek, except for a general advisory regarding Total Maximum Daily Load (TMDL), which is a calculation of the maximum amount of pollutant that a waterbody can receive and still safely meet water quality standards. Duck Creek was on DNR's 2006 impaired waterway list but was deleted from the 2008 list because portions of the creek are on Oneida Nation Reservation land. A Priority Watershed Plan for Duck, Apple, and Ashwaubenon Creeks was completed in 1997 as a joint effort among DNR, Brown County, Outagamie County, and the Oneida Nation. Nonpoint source control measures are being planned and implemented throughout the watershed.

Beaver Dam Creek

Beaver Dam Creek is a small, shallow stream originating near Green Bay Southwest High School, approximately two miles southwest of the project's US 41 southern terminus, and discharging about 4 miles downstream to Duck Creek near Velp Avenue.

According to DNR watershed detail, Beaver Dam Creek has a water quality rating of fairly poor. Land use along Beaver Dam Creek is predominately residential and industrial, and the stream has a history of fish kills every 2-3 years, mostly because of industrial discharges to the stream.

The Oneida Nation Conservation Field Office has a Beaver Dam Creek monitoring station in the southwest quadrant of the US 41/WIS 29 interchange. Based on electro shocking conducted by the Oneida Nation field office in 2005, common fish species in Beaver Dam Creek include creek chub, Johnny darter and blunt nose minnows. Invertebrate species indicated fair to poor water quality. Potential pollution sources include nutrients and trash due to urban and highway runoff and land use practices. Beaver Dam Creek is not listed as an impaired waterway under Section 303(d) of the Clean Water Act.

Floodplains

Floodplains are natural extensions of waterways that provide important natural and beneficial values such as open space, wetlands, and wildlife habitat/movement corridors. Floodplains also store floodwaters, reduce flood peaks and velocities, and protect water quality by serving as a runoff buffer for adjacent waterways.

The 100-year floodplain elevation also known as the base flood elevation, is used for regulatory purposes and represents land adjacent to a waterway that has a 1% percent chance of being flooded in any given year. Based on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), the largest floodplain in the US 41 Memorial Drive to County M project corridor is associated with the bay of Green Bay. Most of the land located south and east of Lakeview Drive is within the bay of Green Bay's 100-year floodplain. The designated 100-year floodplains for Duck Creek and Beaver Dam Creek also encompass the existing freeway and its interchanges.

The extent of 100-year floodplains in the US 41 Memorial Drive to County M corridor is illustrated on Figures 3-5 and 3-6.

Figure 3-5: Fill Encroachment into 100-year Floodplain Alternative D

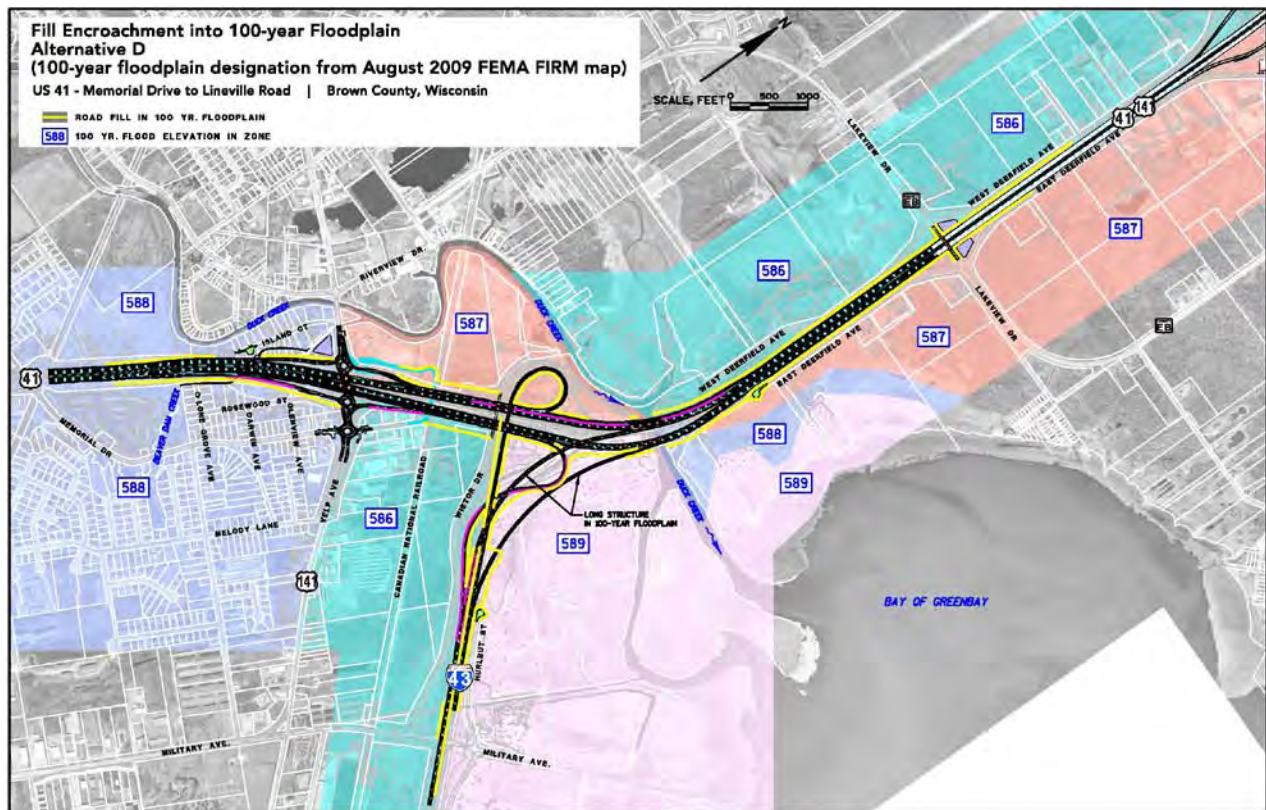
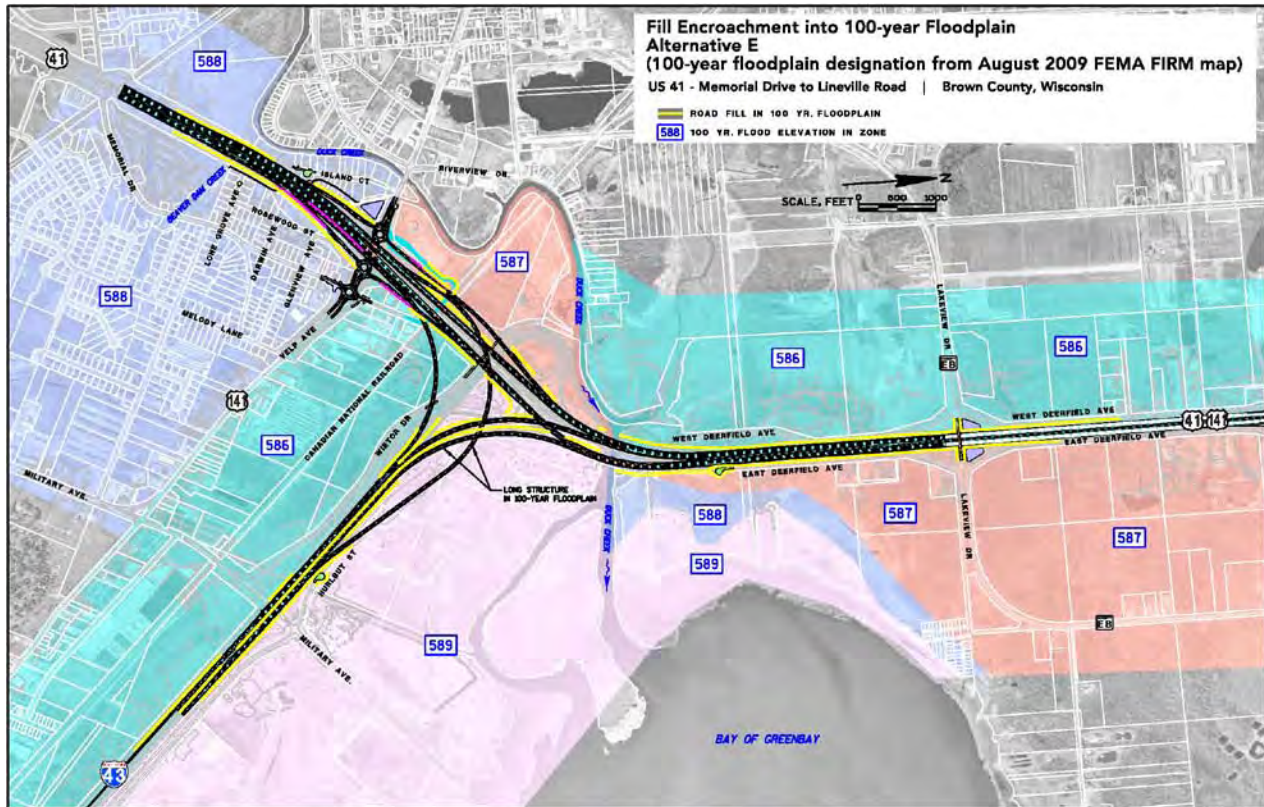


Figure 3-6: Fill Encroachment into 100-year Floodplain Alternative E



3.8.1 Stream/Water Quality Impacts

The No Build Alternative could result in minor water quality impacts due to erosion and sedimentation during pavement and structure maintenance activities over time. There would also be impacts associated with highway runoff and de-icing.

The Build Alternatives have the potential for water quality impacts due to erosion and sedimentation during construction, and due to stormwater runoff and highway deicing after construction.

The existing bridges carrying the northbound and southbound US 41 roadways over Duck Creek were constructed in 1971. Each bridge is a three-span concrete deck girder bridge with two in-stream piers. The Duck Creek channel at this location is 140 feet wide, 7 feet deep, and the navigational clearance is approximately 9 feet. The navigational channel width between the existing piers is approximately 75 feet.

Under Alternatives D and E, it is proposed to replace the existing three-span bridges over Duck Creek with two-span bridges (one in-stream pier). Reducing the number of in-stream piers will have a positive effect on Duck Creek by providing additional substratum for aquatic habitat.

The existing box culvert carrying the northbound and southbound US 41 roadways over Beaver Dam Creek was constructed in 1966. It is a four-cell concrete box with an overall barrel length of 297 feet. Each cell is 10 feet wide by 8 feet high. The existing box culvert is on a 25-degree skew angle.

Under Alternatives D and E, it is proposed to realign Beaver Dam Creek on both sides of US 41, south of the Velp Avenue interchange. See Section 2 for additional information. The new stream channel will be approximately 400 feet south of its present location. The length of the existing channel through the realignment area is approximately 2,290 feet. The new channel will be approximately 2,170 feet in length. These lengths include the channel on both sides of US 41 and through the box culvert.

A new four-cell box culvert will be constructed and will have approximately the same dimensions as the existing box culvert except for its length, which will be increased by about 60 feet to accommodate the wider roadway.

The new stream will have a wider cross section than the existing channel and the realignment will provide a wider buffer area between the stream and US 41. These design features provide an opportunity for enhancing water quality and fishery habitat.

Final structure types for the Duck Creek and Beaver Dam Creek crossings will be determined in the project's design phase in consultation with DNR. WisDOT will also coordinate with DNR on design of the new Beaver Dam Creek channel.

WisDOT prepared a stormwater management concept plan in 2007 for the overall US 41 corridor in Brown County. The purpose of the concept plan was to assist in designing stormwater management measures that meet post-construction performance standards for total suspended solids (TSS) as specified in Wisconsin Administrative Code Chapter TRANS 401—*Construction Site Erosion Control and Stormwater Management Procedures for Department Actions*. For highway reconstruction projects like the US 41 Memorial Drive to County M project, TRANS 401 requires best management practices that reduce post construction TSS by 40% when compared to conditions with no runoff management.

During the US 41 design phase, WisDOT has continued to refine the stormwater management plan based on more detailed engineering, drainage information, and stormwater quality modeling using the USGS Source Loading and Management Model (SLAMM) program. This effort will continue for the US 41 Memorial Drive to County M project section. At this time, based on preliminary information, stormwater ponds are proposed in the southwest quadrant of the Velp Avenue interchange and at the County EB/Lakeview Drive bridge over US 41. The final stormwater analysis and determination of stormwater pond locations will be completed in the final design phase.

The most common deicing agent used in Wisconsin is sodium chloride, commonly referred to as road salt. According to TRB Special Report 235, *Highway Deicing: Comparing Salt and Calcium Magnesium Acetate* (1991), impacts of road salt can adversely affect roadside vegetation, streams, and groundwater, but the impacts depend on a wide range of factors. Traffic levels, wind direction, and intensity and frequency of salt application affect the extent of vegetation damage. Threshold levels vary based on the species, temperature, light, humidity, wind, soil type, drainage patterns, precipitation, plant size, and water availability.

Highest concentrations of road salt are typically within 5-10 feet of the pavement, but some studies have found sodium chloride in soils up to 30 feet away from the pavement. Upon entering streams and rivers, road salt usually has little or no effect because concentrations are quickly diluted. In general, only shallow wells near highways are susceptible to road salt infiltration. Wells most likely to be affected are those within 100 feet down gradient of the roadway in the direction of groundwater movement.

Road salt is applied to Wisconsin's highways during winter weather conditions through contracts with the counties. WisDOT sets limits on when and how much salt is applied and the county submits records indicating the type and amount used for each application. Salt storage sites must have an impermeable base and cover, and a holding basin must be constructed to contain runoff. These requirements help minimize the impact to groundwater from salt storage facilities.

3.8.2 Floodplain Impacts

Executive Order 11988 on Floodplain Management and 23 CFR 650 Subpart A, directs federal agencies to take action to reduce the risk of flood loss; minimize the impacts of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains. The executive order also requires agencies to elevate structures above the flood base whenever possible. The objective of the order is to avoid the long term and short-term adverse impacts associated with the occupancy and modification of floodplain, and to avoid direct and indirect support of floodplain development wherever practical.

As shown on Figure 3-5 (Alternative D) and Figure 3-6 (Alternative E), the existing US 41 freeway is located within the mapped 100-year floodplains of the bay of Green Bay, Duck Creek and Beaver Dam Creek. Proposed capacity expansion on US 41 will result in wider embankment fills that will extend farther into the 100-year floodplain. There isn't sufficient engineering design detail at this time to quantify the amount of additional fill embankment in the floodplain. However, it is assumed that the additional embankment fill will not be substantive enough to cause a change in the 100-year floodplain elevation compared to existing conditions. The proposed improvements include the following measures that will provide replacement floodplain storage to compensate for the expanded embankment fill:

- Removal of portions of the existing I-43 interchange ramps
- Lengthening of existing structures and use of new structures instead of embankment fill as described in Section 2
- Use of beamguard to allow steeper fill slopes
- Construction of stormwater ponds
- Removal of portions of local roadways (Lone Grove Avenue, Hurlbut Street, and East Deerfield Avenue)
- Design of new roadways with elevations at or above existing elevations to minimize the potential for overtopping during heavy precipitation events

A detailed hydraulic analysis for the proposed structures will be completed in the engineering design phase to determine whether any changes would be required to flood insurance rate maps (FIRM). To the extent possible and practicable, the waterway structures will be sized for consistency with Wisconsin Administrative Code Chapter NR 116 (*Wisconsin's Floodplain Management Program*), which allows an increase of 0.01 foot in the height of the regional (100-year) flood elevation without property notifications and/or other appropriate legal arrangements. Based on preliminary hydraulic calculations for proposed new structures at Duck Creek and Beaver Dam Creek, it is anticipated that any change in floodplain elevation will not exceed 0.01 foot for either creek. If there is an increase greater than 0.01 foot, WisDOT will make notifications and/or other appropriate legal arrangements in accordance with NR 116 and the WisDOT/DNR Cooperative Agreement regarding floodplain management.

Based on the above information, proposed improvements in the US 41 Memorial Drive to County M corridor are not anticipated to have a significant encroachment on the 100-year floodplain (base floodplain) as defined in 23 CFR 650 (FHWA's policies and procedures for the location and hydraulic design of highway encroachment on floodplains).

A significant encroachment is defined as a highway encroachment and any direct support of likely base floodplain development that would involve one or more of the following construction related or flood related impacts:

(1) Significant potential for interruption or termination of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation route

The proposed improvements will not cause interruption or termination of a transportation route needed for emergency vehicles or that serve as the area's only evacuation route.

(2) Significant risk (probability of flooding, potential for property loss and hazard to life during service life of the highway)

The proposed improvements will not increase the probability of flooding and will not cause potential property loss or a hazard to life

(3) Significant adverse impact on natural and beneficial floodplain values

The most notable natural and beneficial floodplain value in the project corridor is wetlands. Although wetland impacts will occur, these will be fully mitigated and there will ultimately be no net loss of wetlands due to the proposed improvements.

Support of base floodplain development means to directly or indirectly encourage, allow, serve, or otherwise facilitate additional base floodplain development.

As discussed in Section 3.2, the ICE analysis for the proposed improvements did not identify any substantive indirect effects for Alternatives D or E. An actual or perceived travel time savings could cause communities outside the project area to experience an increase in population/employment growth thereby accelerating conversion of farmland and woodland to urban development. The proposed improvements could also accelerate the rate of infill and redevelopment in the immediate project area. Local land use regulations and guidance such as comprehensive planning, floodplain and shoreland zoning, and official mapping are in place to minimize the potential for undesirable base floodplain development.

3.8.3 Measures to Minimize Adverse Effects

Potential wetland and water quality impacts will be minimized by constructing the project in accordance with the following guidelines and regulations:

- WisDOT Facilities Development Manual, Chapter 10—*Erosion Control and Storm Water Quality*
- Wisconsin Administrative Code Chapter TRANS 401—*Construction Site Erosion Control and Storm Water Management Procedures for Department Actions*
- WisDOT/DNR Cooperative Agreement Amendment—*Memorandum of Understanding on Erosion Control and Storm Water Management*
- WisDOT's *Standard Specifications for Road and Bridge Construction* (Section 107.18, Protection of Lakes and Streams, Section 107.20, Erosion Control, and Section 205.311, Disposal of Unsuitable Material).

Key concepts of the above guidelines and regulations are summarized as follows:

Basic Principles and Best Management Practices

- The proposed improvements will be planned to fit topography, soils, drainage patterns, and natural vegetation to the maximum extent practicable.
- The size of exposed areas at any one time and the duration of exposure will be minimized.
- Control measures will be used to prevent erosion and sedimentation in sensitive areas (proper design of drainage channels with respect to width, depth, gradient, side slopes, and energy dissipation); protective groundcover (vegetation, mulch, erosion mat, or riprap); diversion dikes and intercepting embankments to divert sheet flow away from disturbed areas; and sediment control devices (retention/detention basins, ditch checks, erosion bales, and silt fence).
- Disturbed areas will be protected from off-site runoff and sediment will be prevented from leaving the construction site.
- Runoff velocities will be kept low by maintaining short slope lengths, low gradients, and vegetative cover.
- Disturbed areas will be stabilized as soon as practicable (temporary vegetation, mulch, stabilizing emulsions).

Geometric Design Features and Erosion Control Facilities

- Smooth grade lines with gradual changes will be used.
- Natural and existing drainage patterns will be preserved to the extent possible.
- Stabilized slopes, soil, and stream banks will be left undisturbed where possible.
- Trees and shrubs will be preserved, and over-clearing will be prevented or minimized.
- Irregular ditch profiles and steep gradients will be avoided where possible.
- Vegetated ditches and drainage channels with wide, rounded cross sections will be used where applicable.
- Culverts will be located and aligned to avoid erosion at the outlet and inlet.
- An undisturbed buffer will be left between disturbed soil and sensitive areas where possible.
- The soil surface will be protected by using permanent and temporary erosion control measures such as seeding and sodding, mulch, erosion mat, and riprap.

- Sediment will be removed and velocities reduced by using erosion bales, silt fence, stone or rock ditch checks, sediment traps, and basins.

Erosion Control Implementation Plan

The construction contractor is required to prepare an Erosion Control Implementation Plan that includes all erosion control commitments made in the project's engineering design phase. The construction plans and contract special provisions must include the specific erosion control measures agreed on by WisDOT in consultation with DNR who reviews the Erosion Control Implementation Plan.

Stormwater Management Plan

The objective of the stormwater management plan is to control the quantity of runoff and enhance water quality by removing TSS. To accomplish this, roadway runoff will be directed to vegetated swales where possible and stormwater ponds will be constructed at or near intersections to reduce peak runoff from the increased pavement areas. Where possible, the ponds will be designed as wet ponds for maximum TSS removal. Stormwater facilities will also be designed to preserve existing drainage patterns to the maximum extent practicable.

Project specific measures to minimize adverse effects are summarized as follows.

A detailed plan for the Beaver Dam Creek realignment will be developed in the final design phase in consultation with DNR and the USACE, similar to what was done for the Beaver Dam Creek realignment at the US 41/WIS 29 interchange in the Mason Street to Memorial Drive project section. At this time, WisDOT has identified the following enhancement measures for the Beaver Dam Creek realignment at the Velp Avenue interchange (similar to measures for the creek realignment at the US 41/WIS 29 interchange):

- The amount of exposed riprap along the streambank will be reduced by covering it with salvaged topsoil, erosion mat and vegetative cover (seeding and live stake planting through the riprap).
- The stream alignment and streambed profile will be varied where possible by constructing meanders and placing gravel riffles at select locations.
- The new stream substratum will have a mixed gradation of stone, gravel and sand to support submergent vegetation.

These design features will enhance water quality, fishery habitat and other features of Beaver Dam Creek compared to the existing conditions. The existing creek at this location has limited fishery habitat due to past straightening, and the existing box culvert does not have a natural stream substratum.

The type of box culvert needed for the Beaver Dam Creek realignment will be determined in the project's final design phase when more information is available on hydraulics and soils. If possible, a bottomless box culvert will be used. Another option would be to lower the bottom of the box culvert below the streambed elevation to provide a more natural substratum through the box culvert.

The new structures over Duck Creek are being designed with additional length to allow for construction of pathways on each side of the creek. The pathways will provide a wildlife movement corridor between wetlands and riparian habitat on each side of US 41.

The proposed permanent maintenance access roads at the new I-43 interchange flyover bridges would be traversable by wildlife and would be at an elevation that would not restrict flood flow. Culverts would also be installed where needed to maintain hydraulic connections between adjacent wetlands.

3.9 Groundwater and Drinking Water Supply

Groundwater sustains lake levels, provides the base flows for regional streams, and comprises a major source of water supply for domestic, municipal, and industrial users. Like surface water, groundwater is susceptible to depletion in quantity and deterioration in quality.

Groundwater has long been the source of all drinking water and other water uses within Brown County, except for the City of Green Bay, which obtains its water supply from Lake Michigan. This groundwater is located within two shallow aquifers, as well as two deeper aquifers. Most private wells in Brown County obtain water from the two shallow aquifers, while most public wells obtain water from the deeper St. Peter Sandstone aquifer.

The location of existing water supply wells in the US 41 Memorial Drive to County M project corridor are shown in Figure 3-7.

Figure 3-7: Water Supply Well Locations



3.9.1 Groundwater and Drinking Water Supply Impacts

There would be no groundwater or drinking water supply impacts under the No Build Alternative.

The Build Alternatives are not expected to adversely affect drinking water supply or localized groundwater at or near the surface. Since sizable dewatering or depressurizing activities are not anticipated during construction, temporary impacts on the groundwater system are not expected or would be minimal in isolated locations such as creeks/stream beds and other low lying areas. No noteworthy changes in chemical characteristics of the surface material are anticipated and no degradation of water quality entering the aquifer is expected.

The Safe Drinking Water Act gives EPA the authority to designate aquifers which are the sole or principal drinking water source for an area, and which if contaminated, would create a significant hazard to public health. The EPA defines a sole source aquifer as one, which supplies at least 50% of the drinking water consumed in the area overlying the aquifer. According to EPA's list of designated sole source aquifers, there are none in Wisconsin. As noted under section 3.8.1, the potential for any water supply wells being contaminated by road salt runoff is minimal.

3.10 Threatened and Endangered Species

The DNR Bureau of Endangered Resources maintains data on the locations and status of rare species, natural communities, and natural features in Wisconsin under the Natural Heritage Inventory (NHI) program established in 1985 by the Wisconsin Legislature. The NHI is a dynamic working list with species added and deleted as determined by NHI staff. Information on the NHI working list is verified/supplemented through field inventories conducted by NHI biologists, other scientific professionals and volunteers. The list includes plants and animals considered by DNR and/or the U.S. Fish & Wildlife service as threatened, endangered, or of special concern.

Endangered species means any species whose continued existence as a viable component of this state's wild animals or wild plants is determined by DNR to be in jeopardy on the basis of scientific evidence. Threatened species means any species, which appear likely to become endangered in the foreseeable future on the basis of scientific evidence. Special concern species are those species about which some problem of abundance or distribution is suspected but not yet proven. The main purpose of this category is to focus attention on certain species before they become threatened or endangered.

DNR has identified the following threatened, endangered or special concern species that could be present in the area of potential effect for proposed improvements in the US 41 Memorial Drive to County M project corridor (see letter in Appendix C, page C9):

- Blanding's turtle (*Emydoidea blandingii*)—threatened
- Wood turtle (*Clemmys insulpta*)—threatened
- Common tern (*Sterna hirundo*)—endangered
- Black crowned night heron (*Nycticorax nycticorax*)—special concern
- Cattle egret (*Bulbulcus ibis*)—special concern

DNR also identified additional endangered, threatened or special concern species as listed below that could be present in project area wetlands. Although much of the wetland habitat is now dominated by Phragmites, some habitat may still be suitable for protected plant species.

Endangered Species

Peregrine Falcon (*Falco peregrinus*)
Snowy Egret (*Egretta thula*)
Forster's Tern (*Sterna forsteri*)
Caspian Tern (*Sterna caspia*)
Common Tern (*Sterna hirundo*)
Purple False Oats (*Trisetum melicoides*)

Threatened Species

Great Egret (*Ardea alba*)
Yellow Gentian (*Gentiana alba*)
Seaside Crowfoot (*Ranunculus cymbalaria*)

Special Concern Species

Common Moorhen (*Gallinula chloropus*)
Bald Eagle (*Haliaeetus leucocephalus*)
American White Pelican (*Pelecanus erythrorhynchos*)
Mulberry Wing (*Poanes Massasoit*)
Broad-winged Skipper (*Poanes viator*)
Bullfrog (*Rana catesbeiana*)
Crinkled Hairgrass (*Deschampsia flexuosa*)
Northern Bog Sedge (*Carex gynocrates*)
Marsh Bedstraw (*Galium palustre*)

Information from the U.S. Fish and Wildlife Service (see letter in Appendix C, page C4) indicates there are no known federally listed threatened or endangered species in the project's area of potential effect. Due to changes that could occur in their species lists over time, Fish and Wildlife recommends that the latest list be consulted if there is a lag time of more than 12 months between the project's planning and construction phases.

Swallows, which are protected under the Migratory Bird Treaty Act, are also likely to nest under existing structures in the project area. An inventory will need to be conducted prior to the construction year to determine the presence or absence of swallows.

3.10.1 Threatened or Endangered Species Impacts

There would be no impacts to protected species under the No Build Alternative.

The wetland impacts for the Build Alternatives have the potential for affecting threatened or endangered species habitat and structure replacements have the potential for affecting swallow nests.

As noted below, DNR assumes that habitat for the Blanding's turtle and Wood turtle may be present in the project's area of potential effect. For other protected species, DNR recommends a field survey prior to construction to confirm suitable habitat, presence or absence of protected species, and a survey of nesting birds.

3.10.2 Measures to Minimize Adverse Effects

DNR provided the following guidance for minimizing potential adverse effects to endangered, threatened and other protected species:

1. Wood turtles and Blanding's turtles (threatened species) are known to inhabit areas near the project boundary; therefore it is reasonable to assume that these turtles may be present at the project site. If project construction will start in the spring, the perimeter of the area to be disturbed should be protected with "turtle fence" which consists of properly trenched-in silt fence with turtle turnarounds at the ends, constructed prior to March 15 to discourage turtles from entering the work area. If the construction area cannot be fenced by March 15, the turtle fence must be installed prior to construction activities and the area behind the turtle fence must be surveyed so that any turtles within the fenced area can be removed prior to any site disturbance and throughout the construction period.
2. A survey of the project area should be conducted for nesting birds, particularly the common tern, black-crowned night heron, and cattle egret during the nesting season the year prior to construction to determine if a nesting date restriction will be necessary. The survey technique for these birds should include a ground count of the project area once a week from May 15th to June 30th to determine presence or absence (counts of adults will suffice) or the number of nests per breeding species.
3. To ensure that endangered resource impacts are adequately addressed as project design is better defined another review of endangered resources should be conducted before final design is completed. This will ensure any new information on the species (presence or absence) and their proximity to the proposed construction limits are considered in the final design.
4. Although a number of wetland plants have been found within the project area, much of those wetlands are now dominated by Phragmites. Some of these plant species may still occur within the project area if suitable habitat still occurs. A habitat assessment for the species should be conducted as part of the wetland assessment (cover type) for the project area.

If future inventories indicate that swallow nests are present at locations that would be affected by the project, nests with eggs and/or young cannot be disturbed between May 1 and August 30 of a given year.

If construction will conflict with the swallow nesting period, measures for avoiding impacts or preventing swallows from nesting on the structures would be implemented. Typical measures include the following:

- Demolition of the existing structures would occur outside the nesting season (May 1 to August 30) of the construction year) or would take place during the nesting season if a depredation permit is obtained from the U.S. Fish and Wildlife Service.
- Removal of nests before the nesting season or other means to prevent nesting such as placement of netting on the structure prior to nests being established.

3.11 Recreational Resources / Public Use Lands

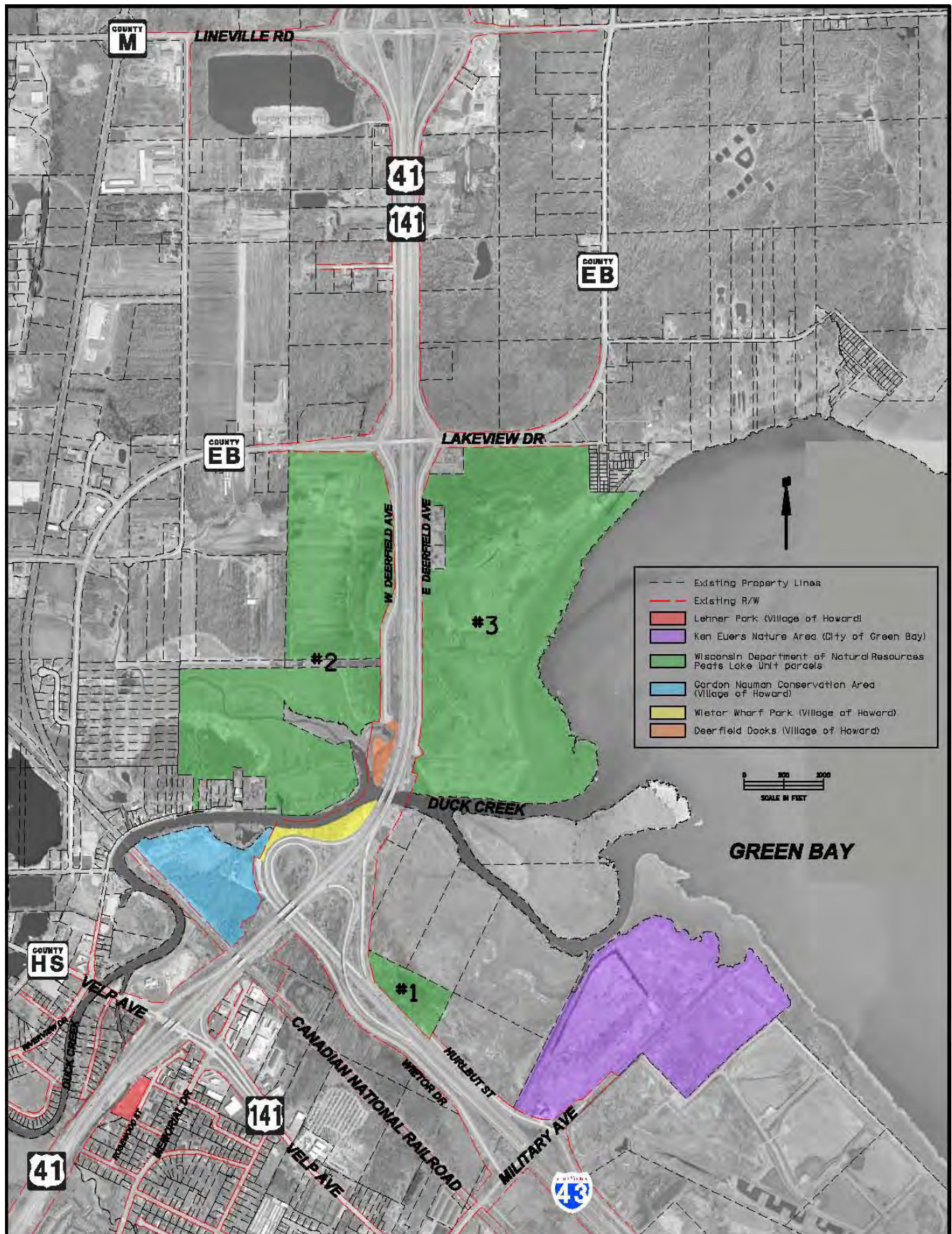
Public use lands in the Memorial Drive to County M project corridor are summarized in Table 3-13 and locations are illustrated on Figure 3-8. To minimize duplication, information on impacts to applicable resources and measures to minimize adverse effects is provided in Section 4—Section 4(f) and Section 6(f) Evaluation.

**Table 3-13
Public Use Land Summary**

Name/Description	Ownership and Administration	Funding Sources	Alternatives Impacting Resource
Lehner Park 2.6 acres; active and passive recreational facilities	Village of Howard	Local; no state or federal funds	None
Ken Euers Nature Area 69 acres; preservation of wetland and waterfowl habitat; passive recreational uses	City of Green Bay	Local/other; no state or federal funds	None
Gordon Nauman Conservation Area 30 acres; wildlife/waterfowl preserve and protection of Duck Creek floodplain; passive recreational uses; listed as parkland by Village of Howard Parks Department	Village of Howard	Local/other; no state or federal funds	Alternatives D and E
Wietor Wharf Park 3 acres; passive recreation and fishing access to Duck Creek; listed as parkland by Village of Howard Parks Department	Property owned by WisDOT and leased to Village of Howard under revocable lease	Dingell-Johnson ¹ funds used for park enhancements (boardwalks)	Alternatives D and E
Deerfield Docks 3 acres; passive recreation and fishing access to Duck Creek; listed as parkland by Village of Howard Parks Department	Property owned by WisDOT and leased to Village of Howard under revocable lease	Dingell-Johnson ¹ funds used for park enhancements (boardwalks and fishing pier)	Alternatives D and E

Name/Description	Ownership and Administration	Funding Sources	Alternatives Impacting Resource
Green Bay West Shores Wildlife Area (Peats Lake Unit) 925 acres; wildlife/waterfowl preservation and management; compatible recreational uses	DNR and Brown County	Parcel #1 (along I-43) LWCF ² and ORAP ³ funds Parcel #2 (west of US 41) Local; no state or federal funds Parcel #3 (east of US 41) ORAP ³ and Pittman-Robertson ⁴ funds	Alternatives D and E None Alternatives D and E
Notes: 1. Dingell-Johnson Act; federal funding program for restoration, rehabilitation and improvement of fishery resources. 2. Land and Water Conservation Fund Act; federal funding program for purchase, development, and enhancement of public use recreational resources. 3. Outdoor Recreation Act Program; state funding program for acquisition of conservation and recreational land; replaced in 1989 by the current Stewardship Program. 4. Pittman-Robertson Act; federal funding program for restoration, rehabilitation and improvement of wildlife habitat, and for wildlife management research.			

Figure 3-8: Public Use Lands in Project Area



3.12 Soils

The 1974 Brown County Soil Survey prepared by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) shows three main soil associations within the US 41 Memorial Drive to County M project corridor:

- The Shawano-Boyer-Sisson Association consists of deep, excessively drained to well drained, nearly level to steep soils found on outwash plains and ridges and glacial lake plains that have sandy and loamy subsoil.
- The Tedrow-Roscommon Association consists of deep, somewhat poorly drained and poorly drained, nearly level soils found on glacial lakes and outwash plains that have a sandy subsoil.
- The Carbondale-Cathro-Marsh Association consists of very deep, very poorly drained, nearly level organic soils found on glacial lake and outwash plains and ridges that have a sandy subsoil.

Specific soil types in the US 41 Memorial Drive to County M project corridor include the following:

I-43

South Project Termini to I-43/US 41 Interchange

Mk (Markey muck; hydric; slight erosion potential)

US 41/US141

Memorial Drive to Velp Ave

Aw (Alluvial land wet; hydric; slight erosion potential)

MfB (Manistee fine sandy loam; not hydric; moderate erosion potential)

Fd (Fill land; not hydric; severe erosion potential)

SfB (Shawano loamy fine sand; not hydric; slight erosion potential)

Velp Ave to I-43/US 41 Interchange

TeA (Tedrow loamy fine sand; partially hydric; slight erosion potential)

Rs (Roscommon much; partially hydric; slight erosion potential)

Mr (Marsh; hydric; slight erosion potential)

I-43/US 41 Interchange to Lakeview Drive

Mr (Marsh; hydric; slight erosion potential)

Rs (Roscommon much; partially hydric; slight erosion potential)

Mk (Markey muck; hydric; slight erosion potential)

Ke (Keowns silt loam; partially hydric; slight erosion potential)

Lakeview Drive to County M

Ke (Keowns silt loam; partially hydric; slight erosion potential)

TeA (Tedrow loamy fine sand; partially hydric; slight erosion potential)

US 41/County M Interchange area

TeA (Tedrow loamy fine sand; partially hydric; slight erosion potential)

Rs (Roscommon much; partially hydric; slight erosion potential)

Existing roadway side slopes vary from 6:1 to a maximum of approximately 2.5:1. Existing longitudinal slopes vary from nearly flat to 3.5%. The proposed roadway side slopes would vary from 6:1 to a maximum of 2.5:1 and the proposed longitudinal slopes would vary from nearly flat to 3.8%.

3.13 Air Quality

Air pollution is the contamination of the atmosphere with gases or particulate matter that are harmful to the human environment. The USEPA, through the 1970 Clean Air Act, has established National Ambient Air Quality Standards (NAAQS) for seven Criteria Air Pollutants that are regulated by USEPA on the basis of information on health and environmental effects. The seven pollutants are ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide inhalable particulate matter, hydrocarbons, and airborne lead. The 1977 and 1990 Clean Air Act Amendments reinforced attainment and maintenance of these standards. These standards have been adopted by the State of Wisconsin through Wisconsin Administrative Code Chapter NR 404, *Ambient Air Quality*. The project is also subject to Wisconsin Administrative Code Chapter NR 411 Construction and Operation Permits for Indirect Sources. NR 411 has established traffic volume thresholds for new highways and modified highways. The goal of the air quality regulations is to ensure that various levels of pollutants do not exceed set standards, and where pollution levels are presently less than standards, to prevent the substantial deterioration of the ambient air quality.

3.13.1 Air Quality Impacts

Brown County was designated non-attainment for Particulate Matter (PM 2.5 standard) in December 2008. Based on DNR monitoring data indicating the PM 2.5 standard is no longer being exceeded, Brown County has been removed from EPA's list of non-attainment areas for PM 2.5. Brown County also meets attainment for 8-hour ozone standards.

In accordance with the requirements of NR 411, a screening analysis for the US 41 Memorial to County M project predicted that carbon monoxide levels would not exceed 75% of the National Ambient Air Quality Standards. Therefore, no substantial impacts to air quality are expected. A construction permit is not anticipated to be required. The air quality receptor locations are shown on Exhibit 3-6 (Page 3-71); Table 3-14 provides a summary of the air quality analysis. The letter of concurrence from WDNR's Air Management Bureau is shown on Exhibit 3-7 (Page 3-72).

Table 3-14
Air Quality Analysis Summary

Analysis Period	CO Levels (ppm)						% of NAAQS (*)					
	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6
2014 1 Hour	4.8	6.0	7.0	5.8	6.8	6.5	13.7	17.1	20.0	16.6	19.4	18.6
2014 8 Hour	2.9	3.6	4.3	3.4	3.9	4.1	32.2	40.0	47.8	37.8	43.3	45.6
2024 1 Hour	4.8	6.2	7.2	5.8	6.9	6.5	13.7	17.7	20.6	16.6	19.7	18.6
2024 8 Hour	2.9	3.6	4.3	3.5	4.1	4.1	32.2	40.0	47.8	38.9	45.6	45.6
NAAQS – National Ambient Air Quality Standard (*) 1 Hour NAAQS = 35 ppm; 8 Hour NAAQS = 9 ppm												

A qualitative analysis of Mobile Source Air Toxics (MSATs) was done in accordance with FHWA's *Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*, September 30, 2009. The proposed US 41 improvements will move some traffic closer to adjacent development, which could result in localized areas having MSAT concentrations higher than what would occur under the No Build Alternative. However, on a corridor-wide and regional basis, with implementation of EPA's vehicle and fuel regulations, there is not expected to be a substantial decrease in MSAT emissions over time. The Qualitative MSAT analysis is provided in Appendix B.

3.14 Noise

Noise is defined as unwanted sound. In an urban environment, noise is made up of ambient or background sounds that vary throughout the day, and intermittent or louder noise generated by sources such as highway traffic and construction. Facilities that would likely be sensitive to noise include residential development, schools, office buildings, churches, and others that require a quiet environment to carry out their daily activities. Commercial and industrial land uses would generally be less sensitive to noise.

Sound levels are measured in units called decibels. Since the human ear does not respond equally to all frequencies (or pitches), measured sound levels are often adjusted or weighted to correspond to the frequency response of human hearing and perception of loudness. The weighted sound level is expressed in units called A-weighted decibels (dBA) and is measured with a calibrated sound level meter. Table 3-15 provides an illustration of typical sound levels in dBA. Sound levels are also expressed with the descriptor L_{eq} defined as the equivalent steady-state sound level that in a stated period of time contains the same acoustical energy as the time-varying sound level during the same period.

Table 3-15
Typical Sound Levels

Sound Source	Sound Level	Subjective Response
Military Jet Takeoff with after-burner at 50'	130 dBA	
Rock and Roll Band	120 dBA	Uncomfortably Loud
Jet Fly-Over at 1,000'	110 dBA	
Power Lawn Mower at Operator	100 dBA	Very Loud
Diesel Truck (55 mph) at 50'	90 dBA	
High Urban Ambient Sound; Automobile (55 mph) at 50'	80 dBA	Moderately Loud
TV-Audio, Vacuum Cleaner	70 dBA	
Normal Conversation at 4' to 6'	60 dBA	
	50 dBA	Quiet
Lower Limit Urban Ambient Sound	40 dBA	
	30 dBA	Very Quiet
Unoccupied Broadcast Studio	20 dBA	
	10 dBA	
	0 dBA	Threshold of Hearing
Sources: <i>Noise Assessment Guidelines</i> Technical Background, HUD Report No. TE/NA 172; <i>Handbook of Noise Control</i> , C. M. Harris, 1979; FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108, 1978.		

3.14.1 Noise Impacts

Noise impacts for highway projects are evaluated in accordance with FHWA procedures (23, CFR, Part 772—*Procedures for Abatement of Highway Traffic Noise and Construction Noise*), and Wisconsin Administrative Code Chapter TRANS 405—*Siting Noise Barriers*.

Table 3-16 lists land use/activity categories and associated noise levels considered to be acceptable for such categories. As defined in 23 CFR 771 and TRANS 405, a noise impact occurs when predicted noise levels approach or exceed the values in Table 3-16. "Approach" is defined as being 1dBA less than the indicated values. For example, in activity category B, a noise impact would occur if future noise is at 66 dBA. Under TRANS 405, a noise impact would also occur if predicted noise levels are substantially higher than existing noise levels (15 dBA increase over existing levels).

If noise impacts are identified, noise abatement must be considered in accordance with the following criteria in TRANS 405:

- Noise abatement is done only to protect lower level first row buildings (closest to the highway)
- Noise abatement must reduce future predicted noise levels by at least 8 dBA
- The total cost of noise abatement may not exceed \$30,000 per benefitted residence

**Table 3-16
Noise Abatement Criteria**

Activity Category	L _{eq} (1h) (dBA)	Description of Activity Category / Land Uses
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the lands are to continue to serve their intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries and hospitals.
C	72 (Exterior)	Developed lands, properties or activities not included in Categories A or B above.
D	—	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

Source: 23 CFR Part 772

The No Build Alternative would continue to have noise impacts at several locations along the US Memorial drive to County M corridor due to proximity of homes and other noise receptors to the existing highway, and increases in traffic volumes over time.

Existing and future traffic noise for Build Alternatives D and E at potentially sensitive noise receptor locations (homes and public use lands) was modeled using FHWA's Traffic Noise Model (TNM 2.5). The noise receptor locations are shown on Exhibit 3-8 (Page 3-73). The noise receptor locations are the same for Alternatives D and E and were chosen based on close proximity to the existing highway and proposed improvements. The noise receptors (homes) in the Island Court and Lone Grove neighborhoods will become "first row homes" when the adjacent homes closer to US 41 are purchased.

The results of noise modeling for existing and future noise for Alternatives D and E are shown in Table 3-17. Existing noise was modeled using (2005) traffic volumes and future noise was modeled using design year (2035) traffic volumes. See Section 1 for more information on existing and forecast traffic in the project corridor.

**Table 3-17
Noise Impact Summary
(Build Alternatives D and E)**

Noise Receptor Information			Sound Level L _{eq} (dBA)			Impact Evaluation		
Noise receptor numbers and locations (See Fig. 10)	Distance from nearest roadway lane to receptor (feet)	Type and number of representative receptors	Noise abatement criteria (NAC)	Future noise (2035)	Existing noise (2005)	Difference between existing and future noise	Difference between future noise and NAC	Impact (I) No Impact (N)
R1 Memorial Drive	257	4 Apartment buildings ¹	67	68	66	2	1	I
R2 Lone Grove Avenue	361	4 single family homes	67	69	64	5	2	I
R3 Rosewood Street	371	3 single family homes	67	67	64	3	0	I
R4 Rosewood Street	541	3 Apartment buildings ²	67	65	62	3	-2	N
R5 Lehner Park	270	Park	67	68	66	2	1	I
R6 Island Court	189	2 single family homes	67	73	68	5	6	I
R7 Island Court	242	2 single family homes	67	69	66	3	2	I

Noise Receptor Information			Sound Level Leq (dBA)			Impact Evaluation		
Noise receptor numbers and locations (See Fig. 10)	Distance from nearest roadway lane to receptor (feet)	Type and number of representative receptors	Noise abatement criteria (NAC)	Future noise (2035)	Existing noise (2005)	Difference between existing and future noise	Difference between future noise and NAC	Impact (I) No Impact (N)
R8 Island Court	451	3 single family homes	67	64	62	2	-3	N
R9 Island Court	483	2 single family homes	67	65	63	2	-2	N
R10 Island Court	654	2 single family homes	67	63	60	3	-4	N
R11 Memorial Drive	169	Commercial	72	69	68	1	-3	N
R12 Wietor Wharf Park	105	Park	67	73	72	1	5	I
R13 Deerfield Docks Park	175	Park	67	71	70	1	4	I
R14 East Deerfield Avenue	157	2 single family homes	67	71	70	1	4	I
R15 East Deerfield Avenue	260	1 single family home	67	70	69	1	3	I
R16 West Deerfield Avenue	168	1 single family home	67	75	70	5	8	I
R17 West Deerfield Avenue	515	1 single family home	67	66	65	1	-1	I
1: R-1 represents 4 apartment buildings, each with approximately 12 living units. 24 living units are first-floor, front facing units. 2: R-2 represents 3 apartment buildings, each with approximately 6 to 8 living units. 4 living units are first-floor, front facing units.								

3.14.2 Measures to Mitigate Noise Impacts

Noise abatement measures are not proposed with this project.

Some residences in the Island Court and Lone Grove Avenue/Rosewood Street neighborhoods are already impacted by existing traffic noise that exceeds the Noise Abatement Criteria (NAC). Future traffic conditions will also cause the NAC to be exceeded at these locations. Therefore, a preliminary review was conducted to determine the feasibility of constructing noise barriers in these neighborhoods in accordance with the following criteria:

FHWA's noise regulation (23 CFR part 772.9) states that federal funds may be used for noise abatement measures when:

- The noise abatement measures will reduce the traffic noise impact, and
- The overall noise abatement benefits are determined to outweigh the overall adverse social, economic, and environmental effects and the costs of the noise abatement measures.

WisDOT's noise regulation (Wisconsin Administrative Code Chapter TRANS 405) states that noise abatement (noise barriers) is feasible and reasonable when:

- The cost of a noise barrier does not exceed \$30,000 dollars per abutting residence.
- The noise barrier would reduce noise levels by 8 dBA.
- Noise barrier cost estimates are based on \$18.00 per square foot of barrier (height x length x \$18).

Using the above criteria, it was determined that noise barriers would cost more than \$30,000 per benefited receptor in the Island Court and Lone Grove Avenue/Rosewood Street neighborhoods. In the Island Court neighborhood, six receptors were identified as benefited receptors. To achieve an 8 dBA noise reduction, a noise barrier (noise wall) 800 feet long by 15 feet high would be needed at a cost of approximately \$216,000, or \$36,000 per benefited receptor. In the Lone Grove Avenue/Rosewood Street neighborhood, three receptors were identified as benefited receptors. To achieve an 8 dBA noise reduction, a noise wall 800 feet long by 6 feet high would be required at a cost of approximately \$230,400, or \$78,000 per benefited receptor. Similarly, the distance between impacted noise receptors along East and West Deerfield Avenue makes the construction of noise barriers in this area is cost prohibitive as the cost for each benefited receptor would exceed \$30,000.

Wietor Wharf Park and Deerfield Docks Park will experience a minor increase in noise (1 dBA) under Alternatives D and E. To be perceptible by the human ear, noise must either increase or decrease by 3 dBA. Existing noise already exceeds the 67 NAC (72 dBA at Wietor Wharf Park and 70 dBA at Deerfield Docks Park). Future noise is predicted to be 73 dBA at Wietor Wharf Park and 71 dBA at Deerfield Docks Park. Because each park is treated as a single receptor, construction of noise barriers at each park is cost prohibitive, as the cost for each benefited receptor would exceed \$30,000.

3.15 Cultural Resources

Cultural resource investigations (archaeological sites and historic structures) in the overall Brown County US 41 corridor have been ongoing since the original US 41 corridor study completed in 2003. Updated investigations have been done to account for refinements made to the Area of Potential Effects (APE) that was identified for the original corridor study.

Investigations relevant to the US 41 Memorial Drive to County M project are summarized below. No archaeological sites or historic structures have been identified and all investigations have been concurred in by the Wisconsin Historical Society State Historic Preservation Office (SHPO).

June 21, 2002—The SHPO concurred in the original Section 106 review, which included archaeological and historic structure investigations for the original US 41 corridor study. At the time the initial archaeological investigations were conducted, only minimal improvements were being proposed at I-43 interchange and the County M interchange was not part of the original corridor study. No archaeological or historic sites were identified.

June 17, 2008—The SHPO concurred in a Section 106 addendum for the Memorial Drive to County M project section under WisDOT Project I.D. 1133-10-00/01. The main reason for this addendum was more extensive reconfiguration of the I-43/US 41 interchange to provide an interstate to interstate connection due to designation of US 41 as an Interstate Highway. Reconfiguration of the I-43/US 41 interchange also resulted in improvements extending farther along I-43 than originally planned. In addition, minor design refinements at the Velp Avenue interchange required additional ground disturbance at this interchange. No archaeological or historic sites were identified. SHPO concurrence in this Section 106 addendum is provided in Appendix C, page C10.

August 2008—Archaeological and historic structure investigations at the County M interchange
Initial Archaeological and historic structure investigations for the County M interchange were conducted by Commonwealth Cultural Resources Group Inc. (CCRG) when this interchange was part of the US 41 Green Bay to Abrams corridor study (WisDOT Project I.D. 1150-46-00). No archaeological sites or historic structures were identified. The Archaeological Field Survey Report documenting CCRG's 2008 archaeological investigations was part of the Section 106 addendum submitted to the SHPO in November 2010 along with a memo documenting CCRG's historic structure survey at the County M interchange.

June 2009—Archaeological resurvey at the US 141/Velp Avenue interchange

This resurvey was conducted by Archaeological Research Inc. (ARI) to account for advanced acquisition of residential parcels in the southwest quadrant of the Velp Avenue interchange (Island Court area) and commercial parcels in the northeast and southeast quadrants of the interchange. Previous investigations within the proposed right-of-way limits at this interchange were reported in the June 17, 2008 Section 106 addendum. Subsequent to that investigation, WisDOT determined that several small parcels would be acquired in their entirety. Therefore, updated investigation was done in 2009 to allow WisDOT to move forward with any razing activities at these locations. No archaeological sites were identified. The archaeological survey report documenting ARI's 2009 archaeological investigations was part of the Section 106 addendum submitted to the SHPO in November 2010. Additional historic structure investigations were not necessary because the advanced acquisition parcels are within the original APE for historic structures.

June 2010—Archaeological resurvey at the County M interchange

The County M interchange was added to the current US 41 Memorial Drive to County M project (WisDOT Project I.D. 1133-10-01) in 2009. As part of the alternatives refinement for this interchange, WisDOT considered a potential shift of the County M structure to the north which was outside the limits of the 2008 survey conducted by CCRG. Therefore, CCRG resurveyed this interchange in 2010 to account for the potential alignment shift. No archaeological sites were identified. Because there were no structures within the alignment shift area, an updated historic structure investigation was not needed. It should be noted that the County M alignment shift is no longer being considered at this time. The Archaeological Field Survey Report documenting CCRG's archaeological resurvey was part of the Section 106 addendum submitted to the SHPO in November 2010.

October 2010—Additional archaeological resurvey at the US 141/Velp Avenue and I-43 interchanges

This resurvey was conducted by ARI to account for the following design refinements which expanded the footprint of the previous resurvey covered in the June 17, 2008 Section 106 addendum:

- Beaver Dam Creek/box culvert realignment required to accommodate proposed improvements in the area of the Velp Avenue interchange.
- Design refinements at the I-43 interchange related to expansion of the Alternative C footprint (Alternative C was still under consideration at that time).
- Proposed 5-legged roundabout and associated local access frontage road on the west side of the Velp Avenue interchange

No archaeological sites were identified. The archaeological survey report documenting ARI's 2010 resurvey was part of the Section 106 addendum submitted to the SHPO in November 2010. Additional historic structure investigations were not necessary because the proposed design refinements are within the original APE for historic structures.

December 29, 2010—The SHPO concurred with the November 2010 Section 106 addendum for the Memorial Drive to County M project (see Appendix C, page C25).

3.16 Hazardous Materials

Potentially contaminated soil and contaminated localized groundwater adjacent to the US 41/141 study area is an important environmental factor in the alternatives screening process. It is WisDOT's policy to avoid acquiring potentially contaminated properties to the extent practical. Where such properties cannot be avoided for the selected improvement alternative, public and private funds are required for additional investigations and if needed, remediation.

3.16.1 Hazardous Materials Impacts

A Phase 1 hazardous materials screening inventory was done within the area of potential effect for improvements in the US 41 Memorial Drive to County M project corridor. The purpose was to review past land use, identify apparent sources of hazardous materials, and assess the potential for affecting sites that may contain environmental contaminants. The screening assessment consisted of a records search, windshield survey of residential properties, and site visits/owner interviews for commercial properties.

The records review included the DNR Leaking Underground Storage Tank (LUST) lists, Wisconsin Department of Commerce Underground Storage Tank (UST) lists, and DNR Spill lists, as well as other sources such as topographic, soil, and plat maps together with regional geologic and hydrogeologic data. Other federal and state regulatory databases were also searched.

The No Build Alternative would not affect any potential environmental contamination sites.

The initial records search identified 21 potentially contaminated sites in the project's area of potential effect. Refinement of the build alternatives resulted in 7 of the 21 sites being directly impacted through right-of-way acquisition and/or construction activities. Of the 7 remaining directly impacted sites, 3 were identified as requiring no further action if right-of-way is not acquired from them; two sites were identified as requiring contract special provisions to let construction contractors know about potential contamination, one site underwent a Phase 2 investigation (WisDOT's Phase 2 Subsurface Assessment, April, 2007) and no contaminants warranting further investigation were found, and one site is currently undergoing investigation. The sediment along Duck Creek that will be disturbed as part of this project is not anticipated to contain hazardous materials.

All of the existing bridges to be replaced/removed in the US 41 Memorial Drive to County M project corridor have Asbestos Containing Materials (ACM):

- NB & SB US 41 over Velp Avenue (B-5-0064 & B-5-0065)
- NB & SB US 41 over the CN Railroad (B-5-0066 & B-5-0067)
- NB & SB US 41 over I-43 (B-5-0068 & B-5-0069)
- NB & SB US 41 over Duck Creek (B-5-0070 & B-5-0071)
- Lakeview Drive over US 41 (B-5-0129)
- Lineville Road over US 41 (B-5-0130)
- Ramp from NB US 41 to SB I-43 over I-43 (B-5-0133)

3.16.2 Measures to Mitigate Adverse Effects

If further investigation is deemed necessary during a subsequent engineering phase, the DNR and other affected parties would be notified of the results. WisDOT would work with concerned parties to ensure disposition of any petroleum contamination to the satisfaction of the DNR, the WisDOT Bureau of Environment, and FHWA before acquisition of any questionable site, and before advertising the project for construction.

For removal of structures with ACM, the construction contract special provisions will include Standard Special Provision (STSP) 203-005 requiring ACM abatement under contract bid item 203.0210s.

3.17 Aesthetics

The visual character and aesthetic quality of an area is influenced by the composition of landscape features including landforms, streams/other water bodies, wetlands, woodlands, parks and other open space, and the extent of existing commercial, residential and industrial development.

The visual character of the US 41 Memorial Drive to County M project corridor includes primarily commercial and residential development in the Velp Avenue interchange area. The remainder of the corridor from the I-43 interchange to the County M interchange is characterized primarily by open space with scattered residential and commercial development. Notable environmental and open space features in the corridor include Duck Creek, Beaver Dam Creek, parkland, and wetland/wildlife conservation areas. In general, the visual quality of the viewshed is considered low in the Velp Avenue interchange area due to the density of residential and commercial development. The quality of the viewshed is considered medium in the remainder of the corridor from I-43 to County M, which offers a rural/open space viewshed. The Duck Creek crossing north of the I-43 interchange does offer a diverse vista of open water, floodplain, wetland, and open space. Depending on the time of day and season, waterfowl and other wildlife may also be present in wetlands and other open areas adjacent to the highway.

Area residents having a view of the existing highway and proposed improvements include those living close to the existing highway in the Velp Avenue interchange area, particularly in the Island Court and Lone Grove Avenue neighborhoods, those living in homes adjacent to US 41 in the remainder of the corridor, and persons working in commercial buildings adjacent to the existing highway. The relative number of persons with a view of the existing highway and proposed improvements is considered relatively low.

Those having a view from the existing/improved highway include travelers who use US 41 and its interchanges for local destinations or destinations outside the Memorial Drive to County M corridor. Motorists on US 41 would have short duration views of the surrounding area as they pass through the corridor. In general, peak viewing time would occur in daylight hours, coinciding with the AM and PM peak travel periods. Because of the high traffic volumes in the Memorial Drive to County M corridor, the number of people with a view from the highway is considered medium to high.

The wider US 41 mainline, flyover ramps, new structures, and other roadway components will increase the visual scale of the highway for both travelers and occupants of adjacent homes and businesses. However, since US 41 is already a dominant feature in the landscape, the increased scale would not cause a substantial change over existing conditions in the overall viewshed. Construction of a bicycle/pedestrian bridge over Duck Creek north of the I-43 interchange would provide an opportunity for a more leisurely view of the creek and its floodplain.

WisDOT is using a Community Sensitive Design (CSD) process to enhance visual aesthetics in the overall Brown County US 41 corridor. During the project's design phase, WisDOT will develop specific recommendations for the Memorial Drive to County M project section such as providing aesthetic treatments on bridges and retaining walls. WisDOT will also evaluate opportunities for providing a visual buffer by landscaping the area between US 41 and the Island Court and Lone Grove neighborhoods.

3.18 Construction

Construction related impacts for the No Build Alternative would be relatively minor and would be associated with maintaining the existing highway over time, including the cost of repairing/rehabilitating the existing pavement and structures. The remainder of this section discusses construction related impacts for Build Alternatives D and E.

3.18.1 Construction Costs

Construction costs for purposes of this EIS have been calculated to account for inflation between 2010 and the end of the multi-year construction that is currently envisioned to occur between 2013 and 2017. WisDOT and FHWA assume a 4% annual inflation rate.

The immediate economic impact of the Build Alternatives would be expenditure of state and federal funds to reconstruct the project area freeway system. The estimated construction cost estimate for Alternative D is \$220 million and the estimated construction cost for Alternative E is \$230 million as presented in the Draft EIS. These estimates include costs for new roadways and structures, wetland mitigation, and costs for community sensitive design measures.

Updated construction costs are based on the design refinements discussed in Final EIS subsection 2.4.2 (extension of project's north terminus at County M, elimination of 5-leg roundabout at Velp Avenue interchange, and other refinements) are \$220 million for Alternative D and \$230 million for Alternative E.

3.18.2 Construction Noise

Noise will be generated by construction equipment during the construction period for the proposed improvements. Typical construction equipment would include dump trucks, graders, cranes, bulldozers, pile-driving equipment and pavement construction equipment. The noise generated during construction will vary greatly depending on the equipment type and model, mode and duration of operation, and specific type of work effort. Typical noise levels would be in the 75 to 95 dBA range at 50 feet. Additional noise/distance information is listed in Table 3-18.

Table 3-18
Construction Noise/Distance Relationships

Distance From Construction Site (feet)	Range of Typical Noise Levels (dBA)
25	82-102
50	75-95
100	63-89
200	63-83
300	59-79
400	57-77
500	55-75
1000	49-69
Sources: U.S. EPA and WisDOT	

Variations in building setbacks and land use, local intensity of specific construction activities, and sequencing and timing of construction will result in varying degrees of exposure to construction noise and thus varying levels of impact. Adverse effects related to construction noise are anticipated to be of a localized, temporary, and transient nature.

To reduce the potential impact of construction noise, the construction contract special provisions will require operation of motorized equipment in compliance with all applicable local, state and federal laws and regulations relating to noise levels permissible within and adjacent to the project construction site. All

motorized construction equipment would be required to have mufflers constructed in accordance with the equipment manufacturers specifications or a system of equivalent noise reducing capacity. The special provisions would also require that mufflers and exhaust systems be maintained in good operating condition, free of leaks and holes.

3.18.3 Air Quality (Emissions and Dust)

Demolition and construction activities can result in short-term increases in dust and equipment-related particulate emissions in and around the project area. Equipment-related particulate emissions would be minimized if the equipment is well maintained. The potential air quality impacts will be short-term, occurring only while demolition and construction work is in progress. Air quality impacts during construction would be generated by motor vehicle, machinery and particulate emissions resulting from earthwork and other construction activities. Construction vehicle activity and the disruption of normal traffic flows may result in increased motor vehicle emissions within certain areas. Construction vehicle emission impacts would be mitigated through implementing and maintaining a comprehensive traffic control plan, enforcing emission standards for gasoline and diesel construction equipment and stipulating that unnecessary idling and equipment operation should be avoided.

Off-road diesel engines can contribute to the levels of particulate matter and nitrogen oxides in the air. Several air quality construction mitigation best practices are available for reducing diesel emission impacts from construction equipment.

In recent years, U.S. EPA has set emissions standards for engines used in most new construction equipment. Pollutant emissions from older off-road diesel engines can be reduced through measures such as reducing idling, properly maintaining equipment, using cleaner fuel, and retrofitting diesel engines with diesel emission control devices. By reducing unnecessary idling at the construction site, emissions will be reduced and fuel will be saved. Proper maintenance of the diesel engine will also allow the engine to perform better and emit less pollution through burning fuel more efficiently. Switching to fuels that contain lower levels of sulfur reduces particulate matter. Using ultra-low sulfur diesel does not require equipment changes or modification. Using fuels that contain a lower level of sulfur also tends to increase the effectiveness of retrofit technologies. Retrofitting off-road construction equipment with diesel emission control devices can reduce particulate matter, nitrogen oxides, carbon monoxide or hydrocarbons, in addition to other air pollutants. Diesel particulate filters can be used to physically trap and oxidize particulate matter in the exhaust stream and diesel oxidation catalysts can be used to oxidize pollutants in the exhaust stream. In the final design phase, WisDOT will consider including these measures on a voluntary or mandatory basis.

Dust control during construction would be accomplished in accordance with WisDOT's *Standard Specifications for Road and Bridge Construction* (2009b), which requires the application of water or other dust control measures during grading operations and on haul roads. The location and operation of concrete batch plants would be in accordance with the Standard Specifications, and any special provisions developed during coordination with the DNR regarding air quality standards and emissions. Any portable material plants would be operated in accordance with DNR's air quality requirements and guidelines. Demolition and disposal of buildings is regulated under DNR's asbestos renovation and demolition requirements (Wisconsin Administrative Code, Chapter NR 447)

Other dust control measures could include frequent watering of construction sites that have large expanses of exposed soil, watering debris generated during the demolition of existing structures, washing construction vehicle tires before they leave construction sites and covering loose materials prior to transport.

3.18.4 Vibration

Ground vibration during construction has the potential to affect nearby buildings. Blasting and impact pile driving are traditionally associated with high levels of vibration. Excavation and backfilling can generate vibration that is perceptible or noticeable in nearby buildings. Vibration created by the movement of construction vehicles such as graders, loaders, dozers, scrapers and trucks is generally about the same as vibration caused by heavy vehicles traveling on streets and highways, and is not sufficient to impact adjacent buildings. Buildings that are in good structural condition would likely not be affected by construction-related vibration. WisDOT will coordinate with adjacent property owners prior to construction to determine if any buildings near construction areas are in poor structural condition. Construction contractors will be required to meet any local vibration ordinances or to comply with Wisconsin Department of Workforce Development vibration regulations where there are no local ordinances in place.

3.18.5 Water Quality

Potential water quality impacts will be minimized to the maximum extent practicable by constructing the US 41 improvements in accordance with the erosion control guidelines and regulations discussed in section 3.8.2. The construction contractor is also required to prepare an Erosion Control Implementation Plan that includes all erosion control commitments made during the environmental document phase and engineering design phase. The construction plans and contract special provisions must include the specific erosion control measures agreed to by WisDOT in consultation with DNR who reviews the Erosion Control Implementation Plan.

3.18.6 Material Source Sites

This project is expected to require a substantial amount of borrow during construction, due to the need for long flyover ramps, widening of the US 41 roadway, and raising of several roadway profiles. The location of material source (borrow) sites is determined by the construction contractors after the project has been advertised for contract bidding based on the final plans, specifications and estimates prepared by WisDOT. Borrow site selection by contractors is specified in FHWA's Construction and Maintenance regulation (23 CFR, Part 635.407) which states the following:

“Contracts for highway projects shall require the contractor to furnish all materials to be incorporated in the work and shall permit the contractor to select the sources from which the materials are to be obtained. Exception to this requirement may be made when there is a definite finding by the State transportation department and concurred in by FHWA, that it is in the public interest to require the contractor to use materials furnished by the State transportation department or from sources designated by the State transportation department.”

“...The designation of a mandatory material source may be permitted based on environmental considerations, provided the environment would be substantially enhanced without excessive cost. Otherwise, if a State transportation department proposal to designate a material source for mandatory use would result in higher project costs, Federal-aid funds shall not participate in the increase even if the designation would conserve other public funds.”

Under certain circumstances, WisDOT could consider specifying potential borrow sources and conducting a public interest finding in consultation with FHWA, or provide information about known possible borrow sources to contractors during contract bidding activities. For example, other ongoing public works projects by municipalities or other governmental bodies in the vicinity of the highway project could be a source of suitable material rather than using a new source farther away. In the US 41 Mason Street to Memorial Drive project section, dredged material from the bay of Green Bay for a public works project will be used as highway embankment fill at select locations in consultation with the DNR and USACE.

Key specifications and guidelines to minimize the potential for adverse environmental impacts of borrow sites include the following:

WisDOT Standard Specifications for Road and Bridge Construction

The Standard Specifications require that borrow material consist of satisfactory soil or a mixture of satisfactory soil, stone, gravel, or other acceptable materials, of a character and quality satisfactory for the purpose intended. Materials should be free from sod, stumps, logs, and other perishable and deleterious matter. The specifications also require that topsoil removed from the borrow site be stockpiled and replaced, and that erosion control measures be implemented in accordance with Wisconsin Administrative Code TRANS 401, *Construction Site Erosion Control and Storm Water Management Procedures for Department Actions*.

WisDOT Construction and Materials Manual

This manual reiterates/reinforces the Standard Specifications with respect to the quality of borrow material and erosion control through a detailed Erosion Control Implementation Plan (ECIP) required to be prepared by the contractor, approved by WisDOT, and submitted to DNR. The manual also contains guidelines for conducting archaeological site screening and/or archaeological surveys depending on the type and location of potential borrow sites.

Any portable materials plants would be properly treated to prevent erosion and DNR would have an opportunity to review site plans, including any gravel washing operations, high-capacity wells, and site closure/restoration.

3.18.7 Utility Adjustments

Utility adjustments and coordination with utility owners is done in accordance with Wisconsin Administrative Code TRANS 220, *Utility Facilities Relocation*, WisDOT's *Guide to Utility Coordination*, WisDOT's Facilities Development Manual Chapter 18, *Utility Coordination*, and guidance provided in WisDOT's Highway Maintenance Manual. Under these regulations and guidelines, WisDOT is responsible for notifying utility owners about the project, obtaining information on existing utilities in the project corridor, providing final plans showing potential utility conflicts, providing a listing of approvals required by governmental agencies, and ultimately reviewing/approving the utility relocation plans. Environmental information that has been developed by WisDOT for purposes of the highway project such as wetland delineations and archaeological survey results is also made available to the utilities to assist them in determining where to relocate their facilities.

The utility owners are responsible for conducting site investigations to determine environmental conditions such as archaeological sites. They are also responsible for determining new locations and for obtaining any environmental clearances associated with relocating their facilities.

At this time, two substantive utility adjustments have been identified for the US 41 Memorial Drive to County M project. These conceptual adjustments are based on preliminary information from the utility providers. Final utility adjustments will be determined in the project's design phase.

- Relocation of the Green Bay Metropolitan Sewerage District (GBMSD) interceptor sewer along the west side of US 41 south of the CN Railroad crossing.
- Relocation of the American Transmission Company (ATC) overhead transmission line adjacent to the CN Railroad crossing and at the I-43 interchange, and adjustments in the County M interchange area.

The conceptual GBMSD and ATC utility adjustment for preferred Alternative E are illustrated in new Final EIS Exhibit 3-9 (Page 3-78). Per EPA's comment on the Draft EIS, these exhibits also show underlying wetland areas in the vicinity of the utility adjustments. Since the utility adjustments would be similar for Alternative D, no separate exhibits are needed for that alternative.

GBMSD Conceptual Utility Adjustment

The conceptual GBMSD utility adjustment was developed at a meeting with GBMSD on September 7, 2010. The relocated interceptor sewer would follow the west right of way line from Memorial Drive to Island Court, and would then be placed between Island Court and realigned Beaver Dam Creek. It would then follow along the north side of Velp Avenue and then along the interchange ramp in the northwest quadrant of the Velp Avenue interchange with a new crossing of US 41 where it would tie into the existing facility east of US 41.

The need for a larger stormwater pond in the southwest quadrant of the Velp Avenue interchange has resulted in shifting the proposed Beaver Dam Creek realignment closer to Island Court than previously assumed in the Draft EIS (See Exhibits 2-2 and 2-A). Shifting the Beaver Dam Creek realignment also requires moving the proposed GBMSD sewer line relocation closer to Island Court (see Exhibit 2A). The combination of shifting the Beaver Dam Creek realignment and the GBMSD sewer line relocation now requires two additional residential displacements. One of the residential displacements is also a business displacement (see subsection 3.5.1 for more information).

Excavation and backfilling a new trench for the relocated sewer line could involve approximately 0.6 acres of *temporary* wetland impact assuming the backfilled trench would revert to wetland.

ATC Conceptual Utility Adjustment

The conceptual ATC utility adjustments were developed at a meeting with ATC on September 13, 2010. An additional meeting was held on April 27, 2011 to determine whether any revisions would be made to the conceptual utility adjustments, particularly where the relocated transmission line is shown as crossing wetland areas in the southeast quadrant of the I-43 interchange. At this time, only minor changes were made as a result of that meeting.

A portion of the ATC transmission line that runs parallel to the CN Railroad tracks would be shifted to the south side of the tracks to provide adequate vertical clearance over the new roadway. At the County M interchange, the ATC line would remain in its existing location, but the tower heights would be raised to provide adequate vertical clearance over the new roadways.

The most substantive ATC utility adjustment would be the relocation of ATC's structures east of the US 41/I-43 interchange. Potential wetland impacts for the relocated transmission lines would be caused by constructing the footings required for the new towers, and any temporary roads that might be needed to access the new towers. This utility adjustment could involve approximately 0.03 acres of permanent wetland fill for the new tower footings, and an unknown amount of temporary wetland impact for temporary access roads.

The environmental impacts for the GBMSD and ATC utility relocations are not included in the wetland impact calculations for Alternatives D or E as presented in Table 3-12. GBMSD and ATC will be responsible for NEPA compliance, including environmental documentation and acquisition of permits, as needed for wetland impacts due to their utility relocations.

Other utility adjustments such as local communication facilities, electric lines and other utilities will also be adjusted as part of the project. However, there are no other known adjustments that would result in substantive additional environmental impacts.

3.18.8 Invasive Species

DNR promulgated a new invasive species rule in August, 2009 (Wisconsin Administrative Code Chapter NR 40, *Invasive Species Identification, Classification and Control*). The rule states that reasonable precautions should be taken to prevent or minimize the transport, introduction, possession or transfer of invasive species. Reasonable precautions include best management practices (BMPs) such as those recommended by the "Wisconsin Clean Boats, Clean Waters" program and "Stop Aquatic Hitchhikers" campaign.

In response to NR 40, the Wisconsin Council on Forestry led development of invasive species BMPs for utility and transportation corridor construction and maintenance activities. This effort included representatives from WisDOT, DNR, utilities, highway construction industry, Wisconsin County Highway Association, Wisconsin Towns Association, and the Public Service Commission. A manual titled Invasive Species Best Management Practices for Transportation and Utility Rights-of-Way (latest version January 6, 2009) provides BMPs that reduce the impact of non-aquatic invasive species. The manual is intended to help utility and transportation practitioners comply with the reasonable precaution requirements in NR 40 and it has been made available to statewide contactors by the Wisconsin Transportation Builders Association (WTBA).

The manual contains the following BMPs on soil disturbance and transport of material:

- Plan activities prior to construction to limit the potential introduction and spread of invasives
- Manage the load of transported materials to limit the spread of invasives
- Establish staging areas and temporary facilities in locations free of invasives
- Use soil and aggregate material from sources free of invasives
- Manage stockpiles to limit the spread of invasives
- Clean equipment prior to moving between infested and non-infested areas
- Minimize soil disturbance by using existing roads, access points and staging areas
- Stabilize disturbed soils as soon as possible and use non-invasive seed for revegetation

In addition, contractors would be required to follow DNR guidelines for ensuring that construction equipment used in or near waterways is adequately decontaminated for zebra mussels and plant exotics including purple loosestrife and Eurasian milfoil.

3.18.9 Transportation Management Plans for Work Zones

A Transportation Management Plan (TMP) lays out coordinated transportation management strategies and describes how they will be used to manage the work zone impacts of a project. The scope of the TMP depends on expected work zone impacts and whether the project is significant. A significant project is one that alone or in combination with other concurrent nearby projects is anticipated to cause sustained work zone impacts that are greater than what is considered tolerable based on the agency's policy and engineering judgment and that would have a relatively high level of disruption. For projects not classified as significant, the TMP may consist of a temporary traffic control plan. The level of traffic control and documentation needed for the US 41 project will be determined in the final design phase when more detailed information is available relative to construction staging.

The following preliminary concepts and guidelines have been developed for traffic management in the US 41 Memorial Drive to County project section:

- Two lanes of traffic will be provided in each direction on US 41
- Night and weekend work will occur along the corridor
- System ramp closures will be required during a portion of the reconstruction
- Velp Avenue/US 141 Interchange will be closed during a portion of the reconstruction
- Lineville Road/CTH M Interchange will be closed during a portion of the reconstruction
- Lakeview Drive will be closed for the reconstruction of the bridge crossing of US 41
- No planned concurrent service interchange closures will occur
- Coordination of TMP will be coordinated with other contract on the corridor between 9th Avenue and Memorial Drive as well as projects adjacent to the corridor

After a construction staging plan is developed in the final design phase, WisDOT will evaluate possible traffic detour routes to determine if improvements are necessary. In addition to roadway improvements, incident management measures would be implemented during construction to ease potential congestion and delay. Highway and local street lane closures would be staged to minimize disruption to the extent possible. Other mitigation measures could include the following:

- Public information meetings and other community involvement opportunities to obtain input on ways to minimize the effects of construction on area businesses, residents, commuters, community services, and special events.
- News releases and project website entries to inform travelers about the construction schedule, traffic conditions, delays, detour routes, and to encourage use of carpooling, park-and-ride lots, and transit during the construction period.
- Encourage businesses to modify their work schedules and/or shipping schedules to avoid peak traffic hours.

3.18.10 Construction and Maintenance Access Roads

Since the Draft EIS, WisDOT has identified possible locations for access roads that will be needed for construction, maintenance and protection of the new structures at the I-43 interchange under Alternatives D and E. The need for permanent access roads and other clear areas around the new bridge abutments and piers is driven in part by renewed concern about bridge security by FHWA and AASHTO (American Association of State Highway and Transportation Officials). The access roads have not yet been designed, but they are typically constructed with clean fill and gravel. The roads will initially be wide enough to accommodate construction equipment. After completion of the project, some of the temporary access road fill that was needed for construction equipment will be removed, leaving a narrower permanent road for future maintenance access. After removal of the temporary fill, the affected areas are expected to revert to pre-fill conditions, including wetland.

The proposed location for permanent maintenance roads for Alternative D are shown in Exhibit 3-10 (Page 3-79), and proposed permanent maintenance roads for Alternative E are shown in Exhibit 3-11 (Page 3-80). These exhibits also illustrate additional wetland areas that would be affected by the permanent maintenance roads.

The addition of permanent maintenance access roads at the I-43 interchange would increase wetland impacts for Alternative D by approximately 2.3 acres, and would increase wetland impacts for Alternative E by approximately 3.2 acres.

The permanent access roads would be traversable by wildlife and would be at an elevation that would not restrict flood flow. Culverts would also be installed where needed to maintain hydraulic connections between adjacent wetlands. Therefore, the access roads should not result in any substantive fragmentation of wetlands or wildlife movement corridors or any substantive impacts to wetland hydrology.

3.19 Relationship of Local and Short-Term Uses Versus Long-Term Productivity

Highway construction projects require the investment and commitment of resources in the project area. Short-term uses refer to the immediate consequences of the project while long-term productivity relates to its direct and indirect effects on future generations.

The No Build Alternative would involve minimal short-term and localized construction impacts associated with maintenance of pavement and structures and spot safety improvements. However, projected traffic growth in the study area would further reduce the operational efficiency of the existing highway, resulting in reduced safety and mobility.

Short-term consequences of the Build Alternatives include:

- Removal of private property from local government tax rolls, thereby temporarily reducing the local tax base.
- Committing public funds to construct the highway improvements. Because highway funding is derived from vehicle user fees and motor fuel taxes, those using the highway ultimately pay for the improvements.

- Converting residential and commercial land, wetland, public use land, and other resources to transportation use.
- Displacement of homes and businesses. Although displacement costs would be reimbursed through state and federal relocation assistance programs, displaced residents and businesses may relocate outside the project area, thus reducing the local tax base.
- Right-of-way acquisition from some residential properties could result in nonconforming lot sizes.
- Inconvenience and added travel time during the construction period for through and local traffic, area residents, and businesses.
- Generation of construction noise and dust that may affect residences and businesses near the construction areas.

Some long-term benefits of the Build Alternatives include:

- Reduced congestion and increased safety.
- Increased operational energy efficiency.
- Additional roadway capacity to address future traffic demand.

The local, short-term impacts and use of resources by the Build Alternatives are consistent with the maintenance and enhancement of long-term productivity.

3.20 Irreversible and Irretrievable Commitments of Resources

The No Build Alternative would involve minimal commitments of resources to maintain the pavement and structures and to make spot safety improvements. Under the Build Alternatives, land acquired for road construction is considered an irreversible commitment during the period such land is used for highway purposes. Large amounts of fossil fuel, labor, and highway construction materials such as cement, aggregate, and asphaltic material would be required. Labor and natural resources would be used in the fabrication and preparation of construction materials. These resources generally are not retrievable. However, they are expected to remain in adequate supply.

Expenditure of public funds for construction of the Build Alternatives is considered an irretrievable commitment. In addition, land converted from private to public use would reduce local tax revenues. As an alternative to total use of new resources, full consideration will be given to using clean construction demolition materials and recycled cement or asphaltic materials. Depending on current technology at the time the project would be constructed, alternative types and sources of materials may be available. The proposed commitment of resources is based on the concept that residents in the study area, region, and state would benefit by the improved quality of the highway. Benefits, which are expected to outweigh the commitment of resources, will include improved safety and travel time savings.

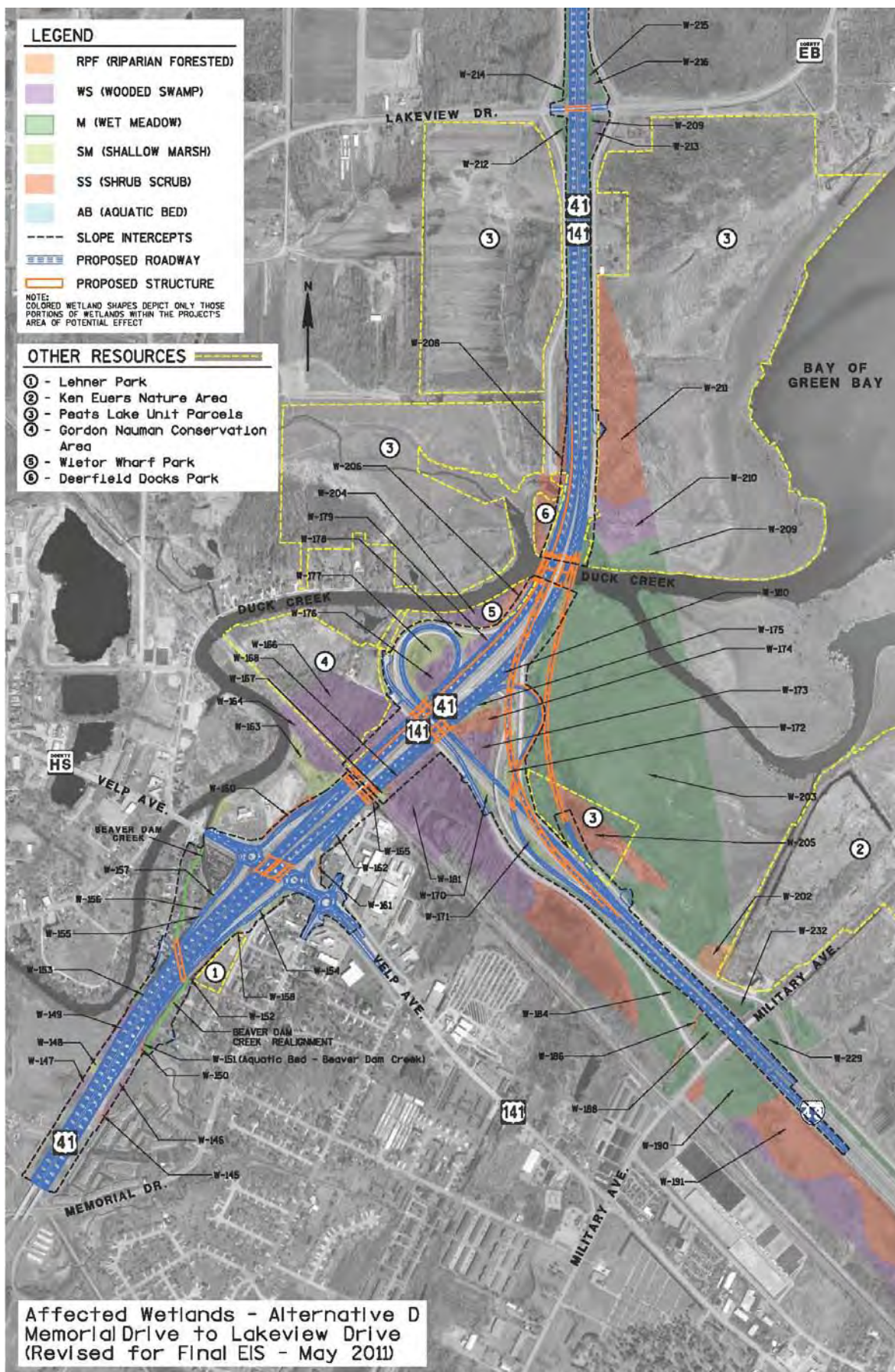


Exhibit 3-3

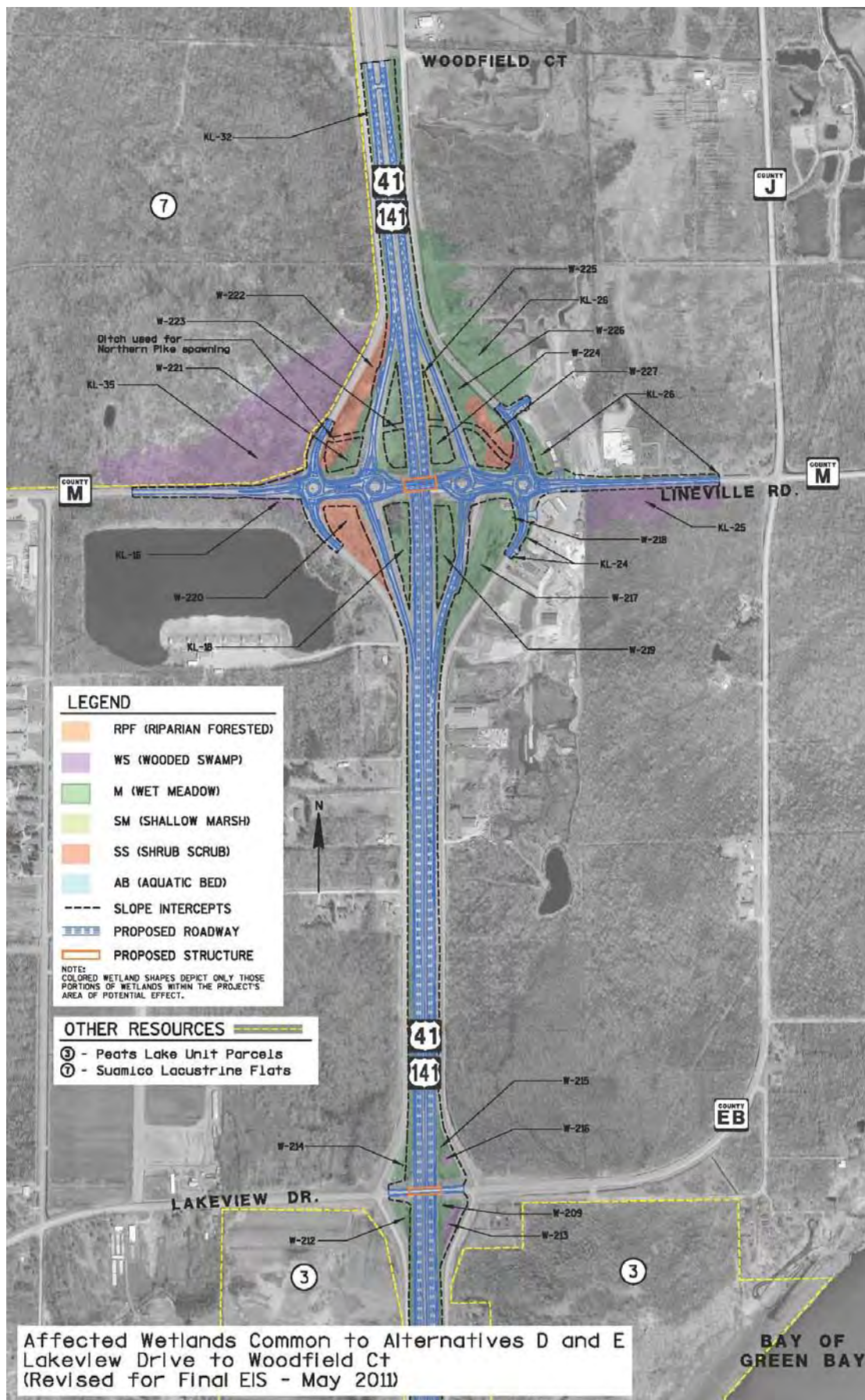


Exhibit 3-5

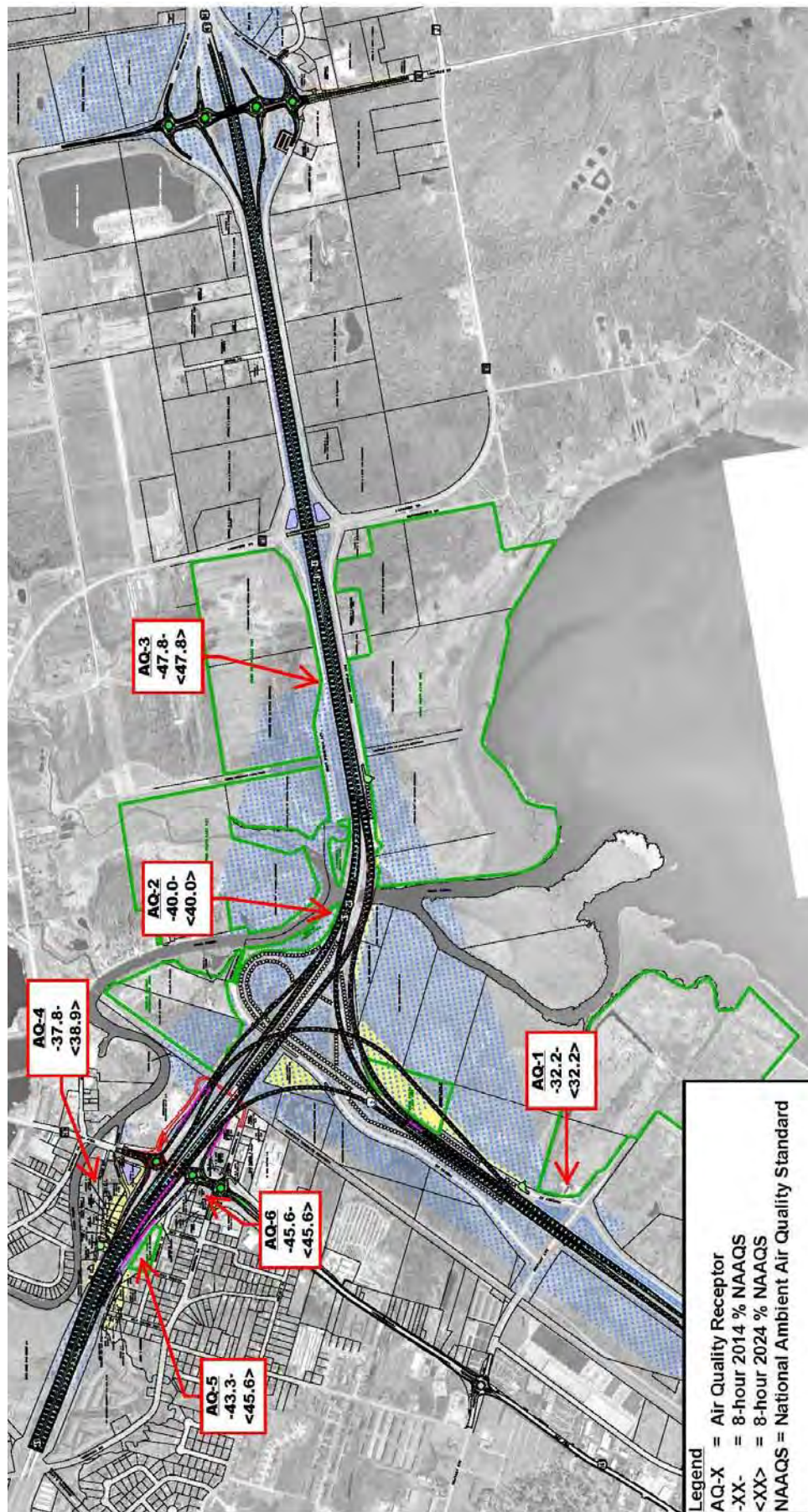


Exhibit 3-6

RECEIVED DEC 14 2007



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary

101 S. Webster St.
Box 7921
Madison, Wisconsin 53707-7921
Telephone 608-266-2621
FAX 608-267-3579
TTY Access via relay - 711

December 12, 2007

FILE REF: 4509
Permit # 07-MF-306

Lance M. Williston, P.E.
KL Engineering
5950 Seminole Centre Court
Suite 200
Madison, WI 53711

Subject: Memorial Drive – CTH M Screening Level Analysis

Dear Mr. Williston:

The Bureau of Air Management has completed a screening review of the Memorial Drive – CTH M project in Brown County (DNR Air Permit # 07-MF-306). The review was completed using the CAL3QHC dispersion model with MOBILE6.2 emission rates.

Based upon review of your analysis and additional modeling, we confirm that the maximum predicted carbon monoxide concentrations would not exceed 75% of any carbon monoxide standard. Therefore, under section NR 411.04(2) (c) of the Wisconsin Administrative Code, no air pollution control permit is required for this project.

A copy of the Bureau of Air Management modeling report is available, upon request. If you have any comments or questions about this project, or about Wisconsin's indirect source permit program, please contact me at (608) 267-0806 or via e-mail: (michael.friedlander@wisconsin.gov).

Sincerely,

Mike Friedlander, Transportation and Air Quality Planner
Regional Pollutants and Mobile Sources Section
Bureau of Air Management

Cc. Jay Waldschmidt – WisDOT

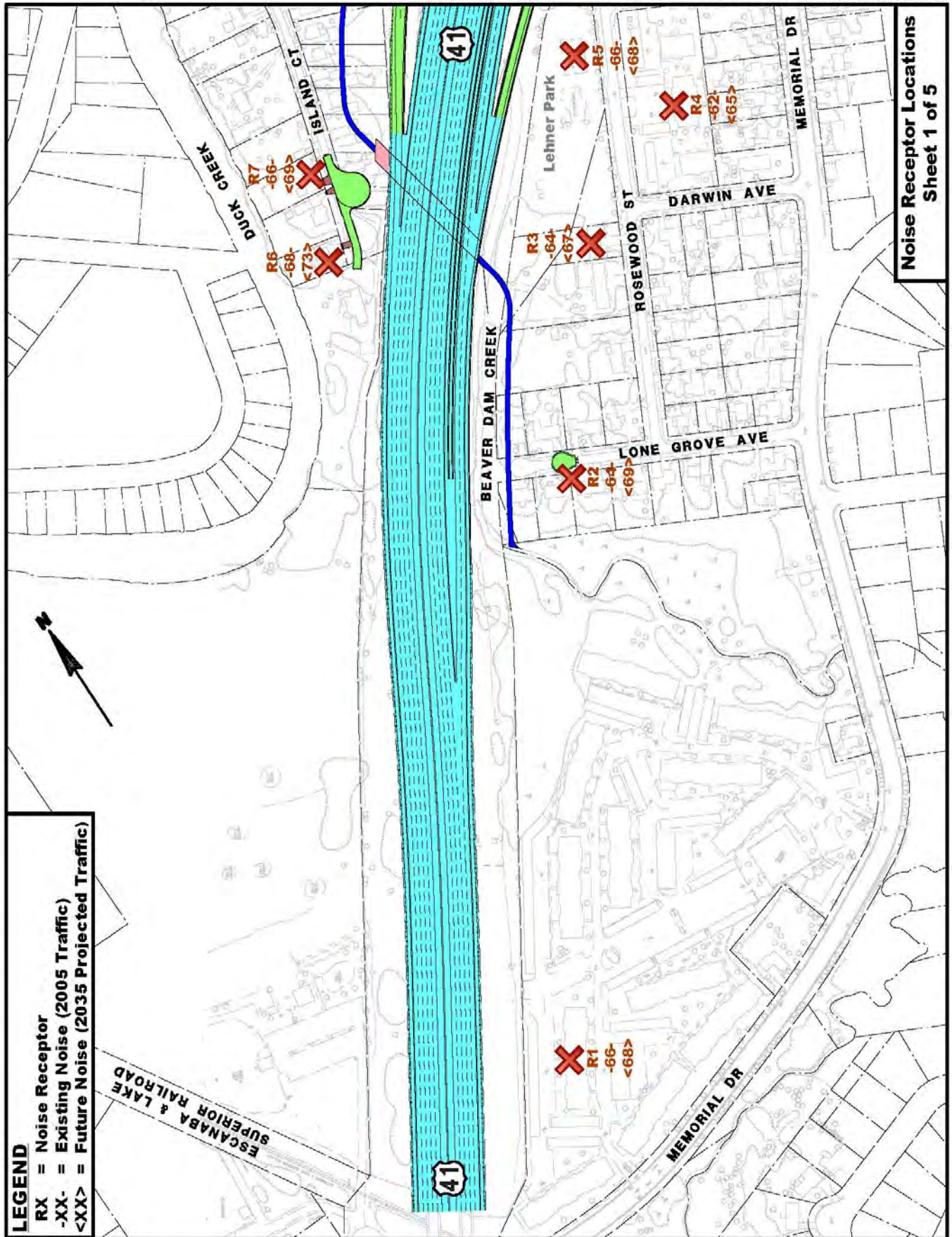
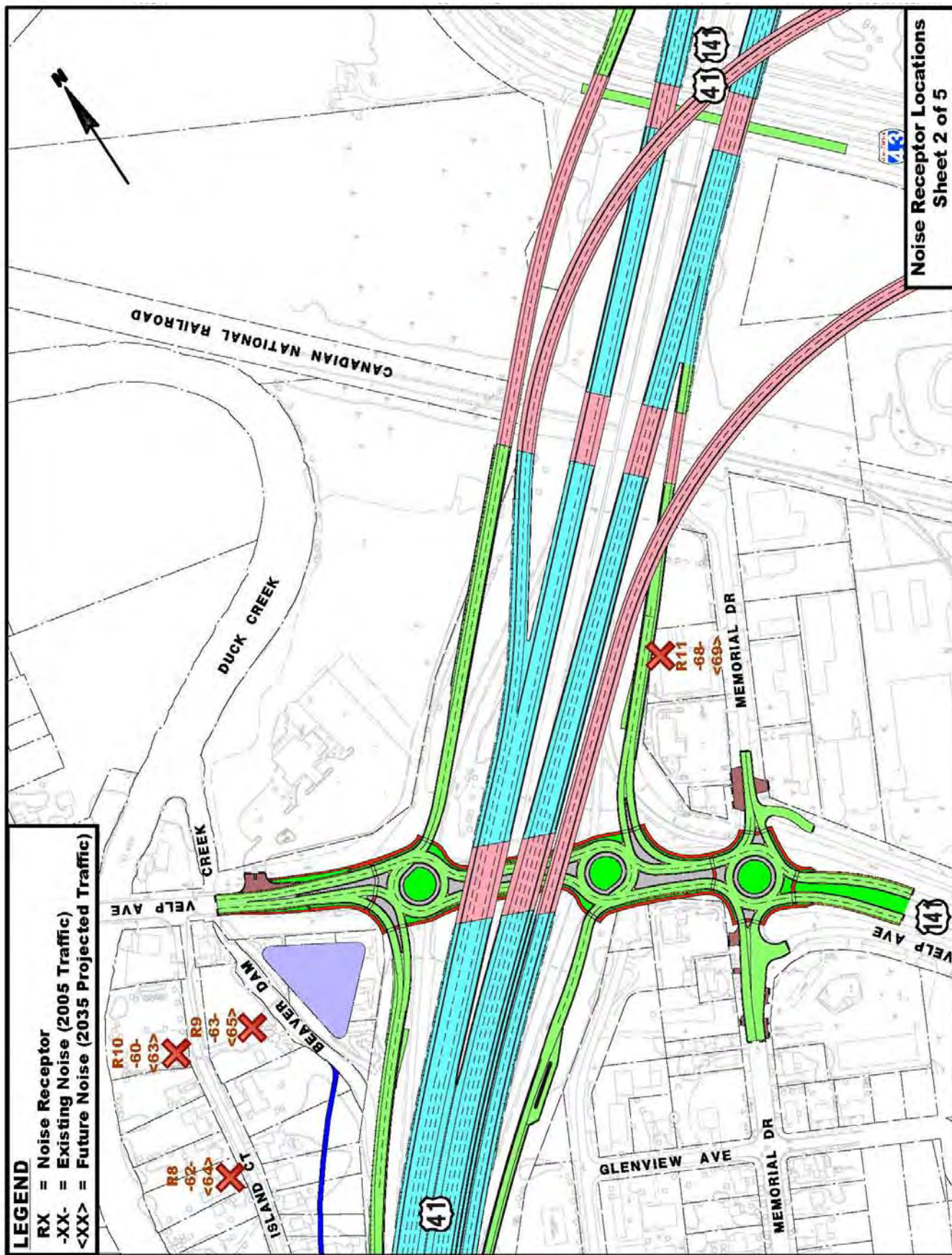
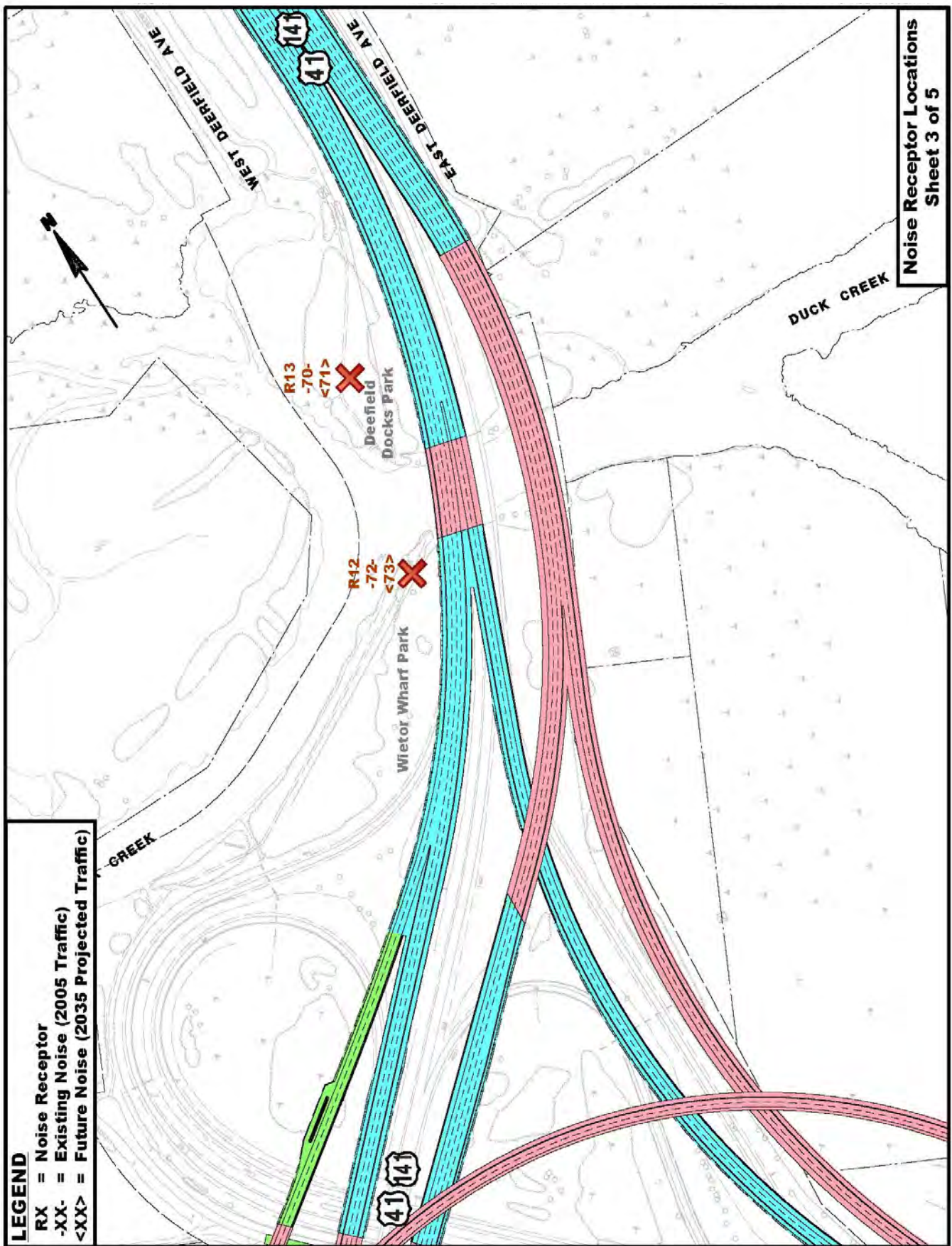
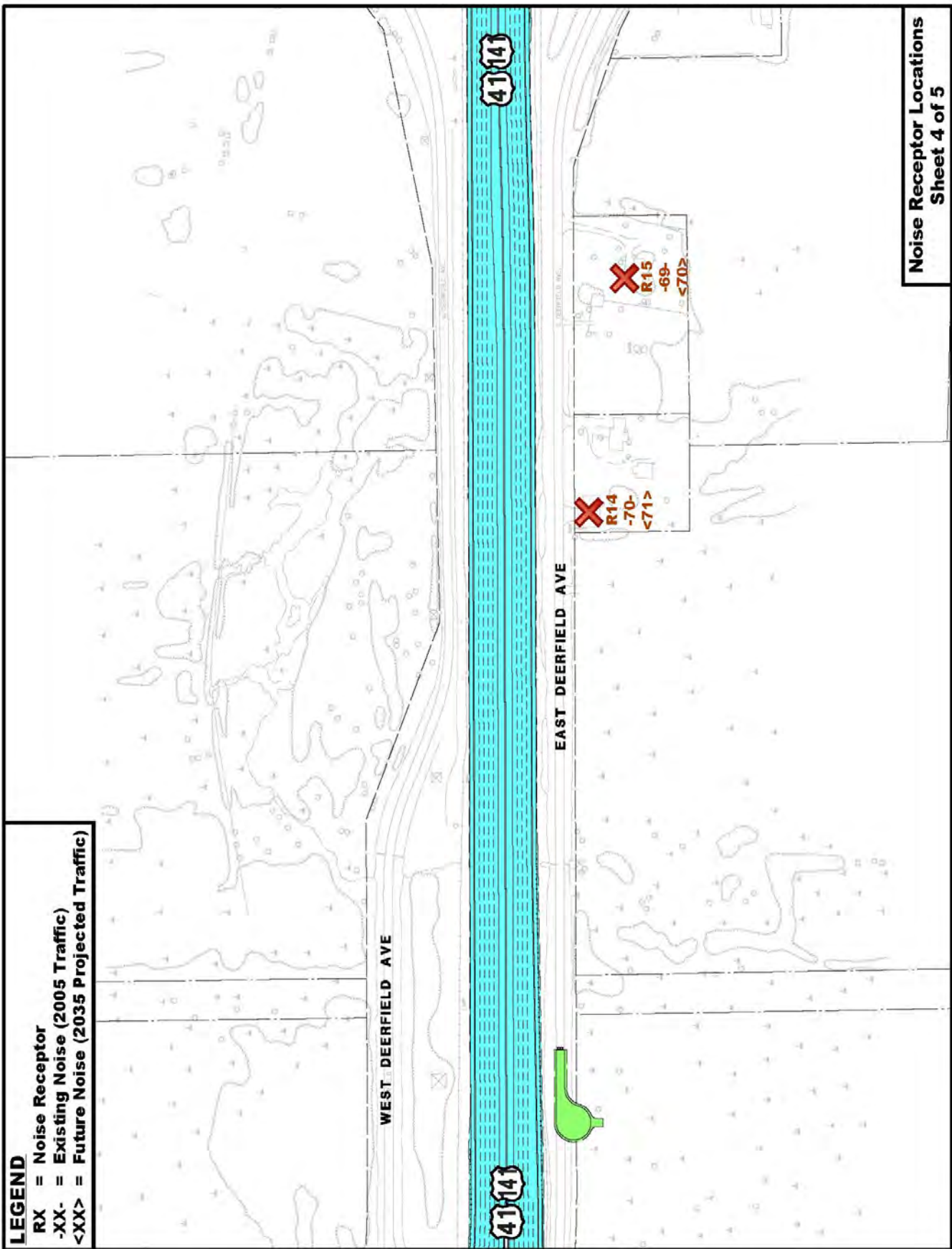


Exhibit 3-8





LEGEND
 RX = Noise Receptor
 -XX- = Existing Noise (2005 Traffic)
 <XX> = Future Noise (2035 Projected Traffic)



Noise Receptor Locations
 Sheet 4 of 5

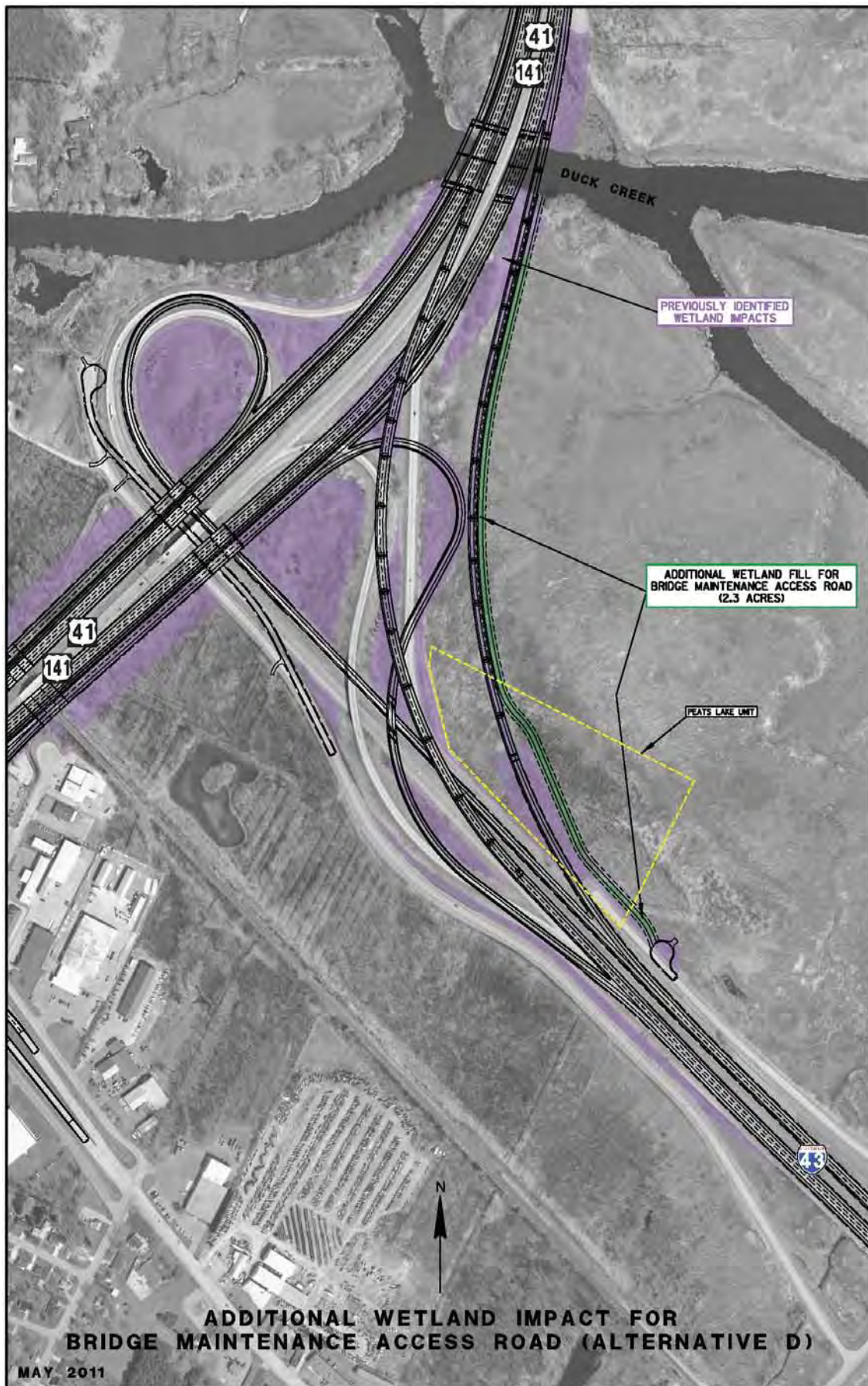


Exhibit 3-10

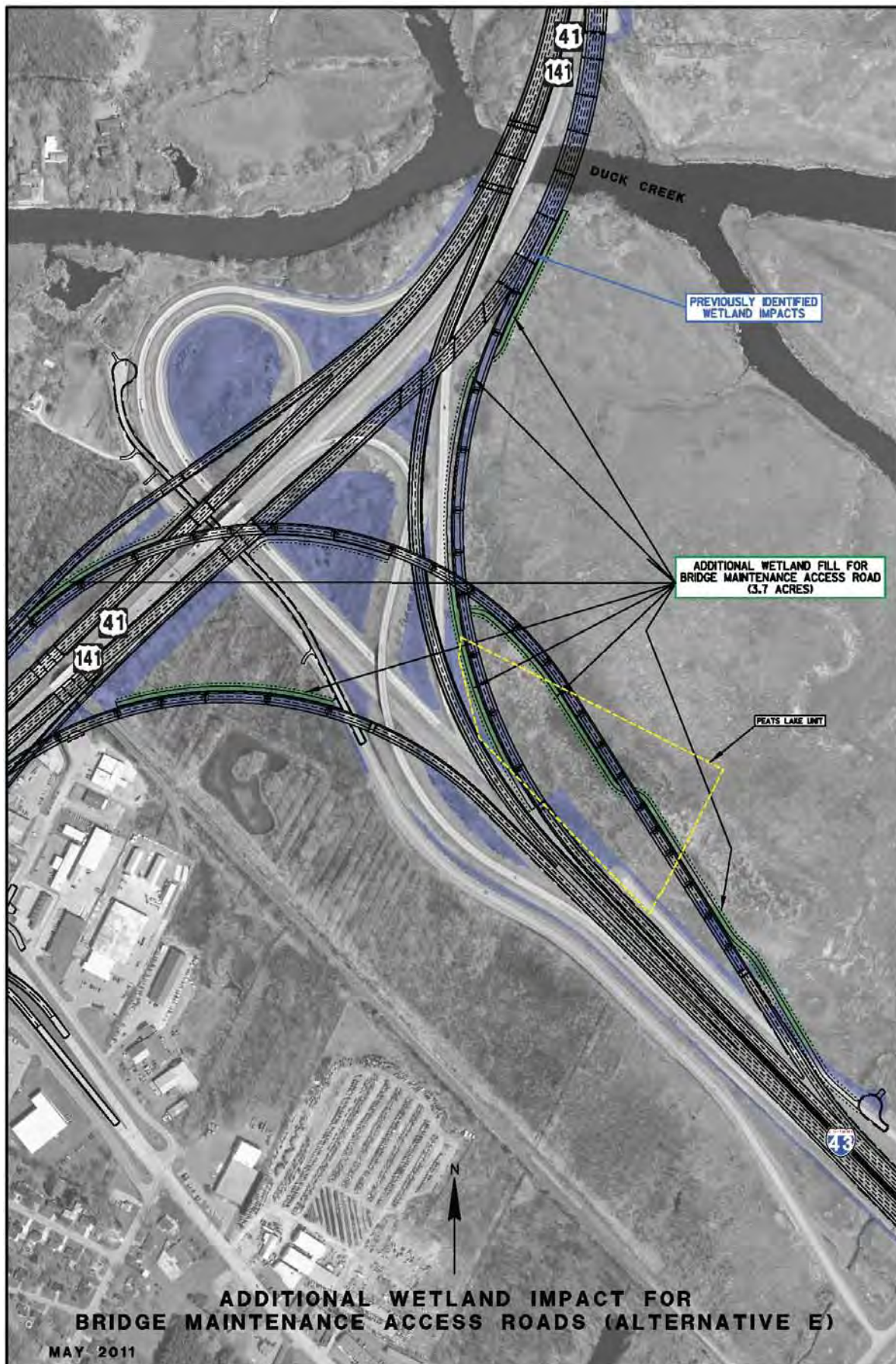


Exhibit 3-11

SECTION 4

Final Section 4(f) and 6(f) Evaluation

4.1 Introduction

The US Department of Transportation's Section 4(f) law (49 USC 303) states that transportation projects requiring the use of land from publicly owned parks, recreation areas, or wildlife and waterfowl refuges of national, state, or local significance, or land from a historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the resource) may be approved only if there is no prudent and feasible alternative to using that land, and the project includes all possible planning to minimize harm to the resource resulting from the use. FHWA's regulations for implementing the Section 4(f) law (23 CFR 774), define historic sites as any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places.

Section 4(f) applies only to the actions of agencies within the US Department of Transportation including FHWA. While other agencies may have an interest in Section 4(f), FHWA is responsible for Section 4(f) applicability determinations, evaluations, findings, and overall compliance for highway projects.

Section 6(f) of the Land and Water Conservation Fund (LWCF) Act as amended (16 USC 4601) states that property purchased or developed with funds under the act may not be converted to other than outdoor public recreation uses. The Act also states that land required from such properties must be replaced with property of at least equal fair market value and of reasonably equivalent usefulness and location, or be compensated through other means in consultation with agencies responsible for administering the LWCF program.

Compensation such as replacement land or equivalent monetary reimbursement is also required when right-of-way is acquired from properties purchased or developed under other federal or state funding programs that are similar to the LWCF program. These include the Federal Aid in Wildlife Restoration Act (16 USC 669) commonly known as the Pittman-Robertson Act, the Federal Aid in Sport Fish Restoration Act as amended (16 USC 777), commonly known as the Dingell-Johnson Act, and Wisconsin's Outdoor Recreation Act Program (ORAP) which was replaced in 1989 by the current Stewardship Program (Wisconsin Administrative Code Chapter NR 51).

The Pittman-Robertson Act was established to fund selection, restoration, rehabilitation and improvement of wildlife habitat and wildlife management research. The Dingell-Johnson Act was established to fund selection, restoration, rehabilitation and improvement of fishery resources. The purpose of the previous ORAP and current Stewardship Program is to acquire land for conservation and recreational purposes, restore wildlife habitat, and to develop and improve recreational facilities.

The information presented in this draft Section 4(f) and Section 6(f) evaluation is preliminary and subject to refinement in the final EIS. FHWA will make a final Section 4(f) finding, in conjunction with approval of the final EIS and Record of Decision.

4.2 Public Use Land and Applicability of Section 4(f) and Section 6(f) Requirements

Publicly owned lands in the area of potential effect of the proposed US 41 Memorial Drive to County M project are summarized below. The general locations are shown on Figure 3-8.

Lehner Park

Lehner Park is located in the southeast quadrant of the US 141/Velp Avenue interchange. The 2.6 acre park is owned and administered by the Village of Howard. As shown on Figure 4-1, facilities include a basketball court, playground equipment, small shelter building and a picnic table. Access is off Rosewood Street. Use is estimated at an average of less than 20 visitors per day. The village has no records of any federal or state funds used for acquisition or development of the park.

Figure 4-1 – Lehner Park



Section 4(f) is applicable to Lehner Park because it is a public use park. No LWCF or similar funds were used in acquisition or development of the park; therefore LWCF Section 6(f) or similar requirements do not apply.

There will be no impacts to Lehner Park. A retaining wall will be constructed along US 41 to avoid land acquisition and there will be no changes in access to the park. No further evaluation is required.

Ken Euers Nature Area

The 69 acre Ken Euers Nature Area is located east of the US 41/I-43 interchange, at the north end of Military Avenue. It is owned and administered by the City of Green Bay.

The nature area was developed as part of a legal settlement in 2001-2002 among the Wisconsin Department of Natural Resources (DNR), the Wisconsin Department of Justice, and the Fort James Corporation (subsequently acquired by Georgia Pacific) for natural resources damage arising from the release of PCBs into the Fox River. PCBs were released into the Fox River by several paper companies from the mid 1950's through the mid 1970's and although no longer being released, PCB contamination remains in the soil and water today. The settlement required the Fort James Corporation to fund habitat restoration/preservation projects to compensate for prior PCB contamination. The Ken Euers Nature Area was one of the restoration projects ultimately developed in response to the settlement. No LWCF or similar funds have been used in land acquisition or development of the nature area.

The primary designated use of the nature area is preservation of wetland and waterfowl habitat. It also has hiking trails that go around the impoundment, a picnic area, and a parking lot, see Figure 4-2. Passive recreational activities include hiking, bird watching, and picnics. The average use is estimated at less than 20 visitors per day.

Section 4(f) is applicable to the Ken Euers Nature Area because it is a publicly owned, locally designated wildlife and waterfowl management area for the conservation and restoration of wildlife and waterfowl resources. The nature area also supports incidental recreation such as hiking, bird watching, and picnics. No LWCF or similar funds were used in acquisition or development of the nature area; therefore LWCF Section 6(f) or similar requirements do not apply.

There will be no impacts to the Ken Euers Nature Area. No further evaluation is required.

Figure 4-2 – Ken Euers Nature Area



Gordon Nauman Conservation Area

The 29.77 acre Gordon Nauman Conservation Area is located southwest of the I-43 interchange, between US 41 and Duck Creek. Existing access is from Wietor Drive which follows I-43 and connects to Military Avenue. The Gordon Nauman Conservation Area is owned and administered by the Village of Howard and is listed as a park by the Village of Howard Parks Division. Like the Ken Euers Nature Area, the Gordon Nauman Conservation Area was developed as part of the legal settlement for natural resources damage arising from past release of PCBs into the Fox River. No LWCF or similar funds have been used in land acquisition or development of the nature area.

The primary designated use of the conservation area is for wildlife habitat and preservation of the Duck Creek floodplain/wetland area. It has a wooded walking loop, open-air shelter, native prairie planting